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June 5, 1928. Re. 16,360

F. C. STEPHENS

NEEDLE AND ITS METHOD OF USE

Original Filed Sept. 25, 1923

Fig. 1.

Fig. 2.

Fig. 4.

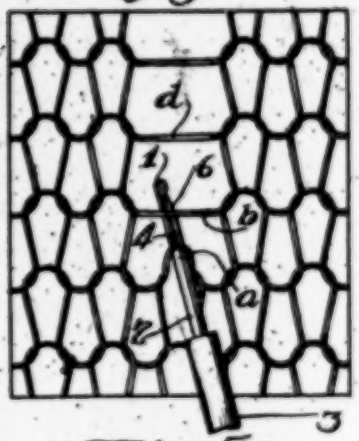


Fig. 5.

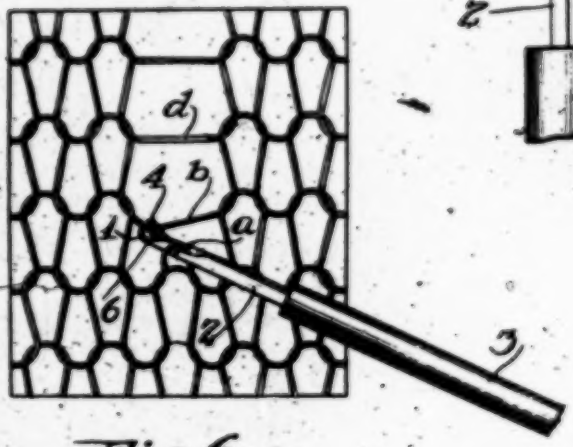


Fig. 7.

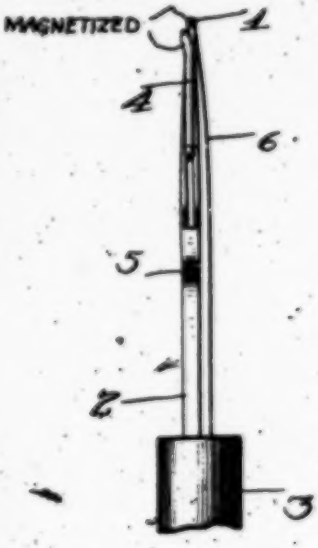


Fig. 6.

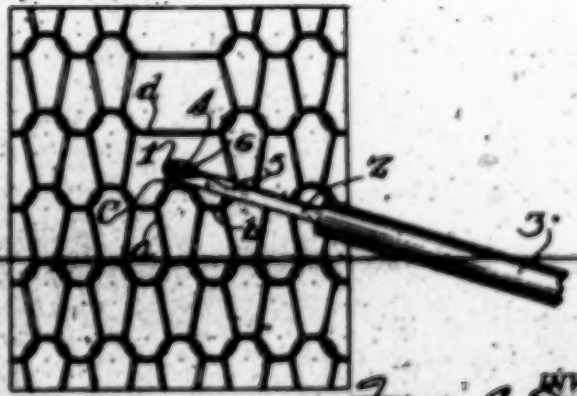


Fig. 3.

INVENTOR
Frank C. Stephens
BY
Vernon E. Hodgett
ATTORNEY

Reissued June 8, 1926. Re. 16,360

UNITED STATES PATENT OFFICE.

FRANK C. STEPHENS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE STELOS COMPANY, INC., OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF DELAWARE.

NEEDLE AND ITS METHOD OF USE.

Original No. 1,564,379, dated December 8, 1925, Serial No. 664,720, filed September 25, 1923. Application for reissue filed March 23, 1926. Serial No. 96,893.

My invention relates to an improvement in needles and its method of use.

In repairing the runs or ravels in knitted goods, other needles have been used, but they are not practical, as the method of use is a tedious one, and trying both to the eyes and patience of the operator. In other methods, the fabric is stretched over the finger tip, making it difficult to insert the hook beneath the thread. This objection is obviated in the present invention by stretching the fabric over a porcelain dish, allowing sufficient depth for the free use of the needle.

With other needles and their methods of use, the stretching of the fabric over the finger tip makes it difficult to see the separate threads, while with my invention and its method of use a white background is provided, making it possible to see the threads of any fabric, and of any color. It is impractical to use other needles with my method.

With other needles used for a similar purpose, the latch or bridge must be forced open by pressing against the thread or fabric and, in operation, can be opened in no other way. This has a tendency to catch the hook in the fabric or thread, and interfere with the work. The present invention overcomes this objection by reason of its peculiar construction. This, together with its magnetized area compels the latch to fly open at the proper time and greatly simplifies the work.

With other needles and their method of use, one thread holds the latch or bridge closed over the hook, and the thread to be looped must be forced into the hook while the latch is so closed. This is very unsatisfactory and unless great care is used in the operation, the thread holding the latch closed will slip off of the needle and allow the work to unravel. With my invention and its method of use, the latch reaches for and grasps the thread to be looped, forces it into the hook and the latch is then tightly closed by the loop already on the needle.

Other needles and their method of use require four separate motions to complete one purpose—two forward and two back. My invention and its method of use requires but one forward and one backward motion to accomplish the same purpose, thereby not only simplifying the work, but saving one-half the time and labor required by other methods.

With other needles and their method of use it is necessary to insert the hook into the first loop of the fabric to be repaired. This also applies where the partially repaired work has been slipped from the needle. With my invention and its method of use, the hook can be inserted at any point back of the running loop and the fabric run back to the loop that has been picked up. This makes it unnecessary to pick up a certain loop as must be done with other needles.

With other needles and their method of use, care must be used to see that each separate thread is picked up by the hook. This places a strain on the eyes. With my needle and its method of use this is not necessary as it is possible to pick up the threads faster than the eye can see the operation and therefore places no strain on the eyes.

My invention, owing to its construction, is suitable for doing various kinds of fancy work or stitches, when used by my method. Other needles are impractical for this class of work as there is no way by which they can be kept from becoming entangled in the threads or fabric.

With other needles and their method of use in case of error necessitating going back to a certain point, it is impossible to drop stitches from the needle without releasing it entirely from the work and picking it up again. With my needle and its method of use it is a very easy matter to drop from the hook one stitch at a time and go ahead again without delay.

Thus I have devised a simple hand operated needle of the character indicated, which may be utilized to do not only the work that similar needles can do, but various stitches and other work that other needles are not adapted to do. Not only this for whereas my needle will do the work that any other similar needle will do, no

other needle will do the work that my needle will.

The needle itself consists of a magnetized hook at one end, curved laterally to a desired degree, off center; a magnetized latch or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, said latch or bridge being curved laterally to a degree to cause it to project slightly to one side of the hook when in closed position; the end of the needle opposite the hook terminating in a handle by means of which the needle is manipulated, the needle being notched or recessed at a point opposite the end of the latch or bridge when the latter is open, and a beveled side guard attached at the handle end to the right hand side of the needle and terminating, at its free end, near the hook. The hook and latch are magnetized so that when the ends of said hook and latch are brought together, they repel each other.

In the accompanying drawings:

Fig. 1 is a side elevation of the needle;

Fig. 2 is a front elevation of the same;

Fig. 3 is a view at right angles to Fig. 2 and showing the side guard;

Figs. 4, 5 and 6 are views of the fabric and showing the different stitches in the method of hand knitting or repair;

Fig. 7 is an enlarged fragmentary view of the hook and latch showing the latch in its closed position.

The numeral 1 represents the magnetized, curved hook at one end of the needle 2, and 3 is the handle. 4 is a magnetized, curved latch or bridge in proximity to the hook and in position to close the latter during a portion of the operation of knitting and repair. It also serves the hitherto unknown purpose of reaching for and grasping and forcing into the hook the thread necessary to be picked up in order to continue the looping process. A notch or recess 5, is formed in the needle, opposite the free end of the latch or bridge, when the latter is wide open, as viewed in Fig. 1, the purpose of which is to reduce the thickness at this particular point with the needle adapted more nearly to the thickness of thread or yarn and the size of loop and more particularly for the purpose of reducing the required movement of the needle in the operation to an extent corresponding to the depth of the notch or recess.

A beveled side guard 6 is placed along the right-hand side of the needle so that as the needle is pushed forward through the formed loop the latter slides back from the hook between the shank of the needle and the guard 6 and this relation insures that on the backward stroke the loop will force the latch forward to hold the next thread in the hook whereas any other thread will slide over the guard and will not operate to close the latch 4. On the rearward stroke the guard 6 also prevents the hook from catching the side of the fabric.

The present invention is wonderfully well adapted to the repair of "runs" in silk stockings, although it applies as well to breaks in the stitches of sweaters and other knitted or crocheted fabrics. By its use a stocking can be easily and quickly repaired by hand and restored to its original condition, at slight expense. The skill required to operate the needle is easily acquired with a little practice.

While different stitches may be made by means of this needle, by ways of illustration one only has been shown in the several figures of the drawings from Figs. 4 to 6 inclusive, and in this particular stitch the method of operation is substantially as follows:

Referring to Figs. 4 to 6 of the drawings, an exaggerated view of a run in fabric such as a sweater or a stocking is shown. The operator at first inserts the magnetized hook 1 through the last loop *a* of the ravel or run and beneath the next thread *b*. The needle is then slid forward until the loop *a* slides over the free end of the latch or bridge 4. As the loop *a* is sliding toward the free end of the latch or bridge it spreads the free end of the side guard from the needle, and on the forward stroke this guard spreads the threads and facilitates the stroke. The needle is then pulled back in the reverse direction, the loop *a* sliding back against the latch or bridge and swinging it against the hook as clearly shown in Fig. 5, and the latch in the meantime reaching for and grasping the thread *b* and forcing it into the magnetized hook as shown in said Figure 5. If by any chance the hook should grasp more than one thread, the loop *a* will force the latch to one side of the hook and allow the loop *a* to also slide into the hook, thus blocking the operation and in this way preventing errors in the repair work. This is caused by the degree of curvature of both hook and latch. The operator now continues to pull the thread *b* which is held tight by the closing of the latch or bridge 4, against the hook, until a loop *c* is formed in the thread *b* and it is drawn through the loop *a* as clearly illustrated in Fig. 6. In the meantime, the guard as a result of its position and shape shields the latch point and prevents the thread *b* from catching behind the latch and closing it prematurely, and thus permitting the loop *a* to slip entirely off the hook without forming the new loop *c*. The hook and latch, being magnetized are like poles and repel each other when brought together, thus when the loop *c* is drawn through the loop *a*, as shown in Fig. 6, the magnetized latch 4 being repelled by the magnetized hook *l* will fly back into the position shown in Fig. 4.

The degree to which the hook and latch are curved in the needle, together with the magnetized points, compels the latch to reverse its action when the loop *a* slips off of it and facilitates its motion backward and away from the hook, the object of which being to fully open the latch before the commencement of the next forward stroke, thereby making more rapid work possible by preventing the latch from catching in the threads or fabric on the forward stroke.

The operator now lifts the needle carrying the loop *c* up over and around loop *a*, pushing the needle forward as in Fig. 4 through the loop *c*, and hook *l* is inserted beneath the next succeeding thread *d*. After the loop *c* shall have slid over the end of the latch or bridge and beyond it, the needle is reversed or pulled back, during which motion the latch reaches for and grasps the thread *d*, forces it into the hook, just as it has previously done with the thread *b* as shown in Figs. 5 and 6, and as thread *d* is pulled back the loop is formed in it, the guard, in this operation, performing its function as heretofore described. Thus the operation is repeated until the run or ravel is repaired, after which the end is held down by a thread or stitch.

The clearance afforded by the notch or recess 5 makes it possible to hold the needle down closer to the fabric, and greatly reduces the thickness of the combined needle and latch as well illustrated in Fig. 1, which is very desirable during the operation of knitting and repairing, as it lessens the pull and tension upon the threads and the loop.

In this way the fabric is easily and quickly repaired by hand, by the skilful manipulation of the hand needle. The loop may be fastened by a thread or stitch or other means, which will prevent the entire repair stitch from raveling out. When the fabric has been repaired, the structure of the stocking can be evened up by spreading the chains of stitches with the back of the needle. The guard 6 in this operation prevents the needle from penetrating the fabric.

I claim:

1. A needle having a hook and a side-guard extending in proximity to said hook.

2. A needle having a hook and a side-guard adjacent and extending alongside the hook.

3. A needle including means for receiving a thread, a latch co-operating therewith to confine the thread and adapted to be closed by a looped thread, and means for guarding the latch in its open position to prevent the closing thereof by any other thread except the looped thread.

4. A needle for repairing runs including a hook, a latch adapted to be closed by a looped thread, and a side-guard adjacent the free end of the latch when open for guarding the latch in its open position to permit the closing thereof by the looped thread and to prevent the closing thereof by any other thread.

5. A needle having an eye for receiving the thread, and a movable magnetized latch for closing said eye and retaining the thread therein.

6. A needle having a hook and latch magnetized so that when their ends are brought together, they repel each other.

7. A needle having a hook and latch, both of which are magnetized so that like poles are adjacent each other.

8. A needle having a permanently magnetized hook and a permanently magnetized latch pivoted in proximity to the hook, the magnetism of the hook and latch being of the same polarity.

9. A needle having a magnetized hook and a magnetized latch or bridge pivoted in proximity to the hook.

10. A needle having a hook, a pivoted latch and a side guard extending in proximity to the hook and latch.

11. A device of the character described, having a hook at one end and a latch pivoted in proximity thereto, the free ends of the hook and latch, both extending laterally to a plane extending longitudinally through the device.

12. A device of the character described, having a magnetized hook at one end and a magnetized latch pivoted in proximity thereto, the free ends of the hook and latch, both extending laterally to a plane extending longitudinally through the device.

13. A device of the character described, having a hook at one end, and a latch pivoted in proximity thereto, the free ends of the hook and latch both extending laterally, in opposite directions, to a plane extending longitudinally through the device.

14. A device of the character described, having a magnetized hook at one end, and a magnetized latch pivoted in proximity thereto, the free ends of the hook and latch both extending laterally, in opposite directions, to a plane extending longitudinally through the device.

15. A needle having a magnetized hook at one end, a magnetized latch or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, the needle being notched or recessed at a point opposite the free end of the latch or bridge when the latter is open.

16. A needle having a magnetized hook at one end, a magnetized latch or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, the needle being notched or recessed at a point opposite the

free end of the latch or bridge when the latter is open, the magnetism of the hook and latch being of the same polarity.

17. A needle having a magnetized hook at one end, curved laterally to a desired degree off center, a magnetized latch or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, said latch or bridge being curved laterally to a degree to cause it to project slightly to one side of hook when in closed position, the needle being notched or recessed at a point opposite the end of the latch or bridge when the latter is open.

18. A needle having a magnetized hook and latch, which are magnetized to normally repel each other, the latch being positively closed by the material being operated upon.

19. A needle having a hook and latch, both of which are magnetized to repel each other, to cause the latch to open when not otherwise resisted, said latch being closed only by the material being operated upon by the needle.

20. A needle having a magnetized hook at one end, a magnetized latch or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, the needle being notched or recessed at a point opposite the end of the latch or bridge when the latter is open, and a beveled side guard attached at the handle end to one side of the needle and terminating at its free end near the hook.

21. A needle having a magnetized hook at one end, a magnetized latch or bridge pivoted in proximity to the hook and positioned to be magnetically repelled therefrom to open the latch, and to be positively closed by the material being operated upon, the needle being notched or recessed at a point opposite the free end of the latch when the latter is open, and a side guard attached at the handle-end and lying at one side of the needle and terminating at its free end in proximity to the hook.

22. A device of the character described including a hook and a guard extending alongside each other, the guard terminating in a sharply pointed end in proximity to the end of the hook.

23. An improved method of repairing runs or ravelings in a fabric which consists in stretching the fabric over a suitable holder, inserting a repairing device having a hook and pivoted latch through a loop formed in the run or raveling, continuing this movement on through the fabric while holding the device laterally out of alignment with the run or raveling until the loop has slid back over the end of the latch and beneath the latter, then reversing the movement of the device through the loop, catching the next forward thread in the hook while the loop is being pulled over the latch causing the latch to close over the thread, and the loop to be cast off over the end of the device, the thread caught in the hook thereupon forming a new loop, taking the place of the first-described loop, then reinserting the device into the fabric as before, and repeating the operation until the run or raveling has been repaired, and finally fastening the thread.

In testimony whereof I affix my signature.

FRANK C. STEPHENS.

Plaintiff's Exhibit 26. 2896

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of an Instrument of Writing

Recorded May 24, 1929,

in

Liber L-139, page 547 of Transfers of Patents. 2897

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this ninth day of June in the year of our Lord, one thousand nine hundred and thirty and of the Independence of the United States of America the one hundred and fifty-fourth.

(Seal)

THOMAS E. ROBERTSON
Commissioner of Patents. 2898

Attest:
D. E. WILSON
Chief of Division.

2899 *Plaintiff's Exhibit 26.*

Liber L139 page 547

ASSIGNMENT

WHEREAS, HOSIERY MOTOR MEND CORPORATION, a corporation organized and existing under the laws of the State of Delaware, having its principal place of business at 40 East 34th Street, City, County and State of New York, is the owner of the entire right, title and interest in and to certain new and useful improvements and inventions pertaining to hosiery repair machines and parts thereof, to-
2900 gether with applications for Letters Patent of the United States as follows:

William D. Van Dyke, S. N. 212,811, filed Aug. 13, 1927, Knitting Needles;

John T. Rhamstine, S. N. 251,569, filed Feb. 3, 1928, Hosiery Repair Apparatus;

William D. Van Dyke, S. N. 259,837, filed March 7, 1928, Needles;

William D. Van Dyke, S. N. 302,535, filed Aug. 28, 1928, Machines for Repairing Runs in Fabrics;

Charles E. Mandelick, S. N. 357,599, filed Apr.
2901 23, 1929, Machine for Relooping the Runs in Stockings and other Knitted Fabrics;

Charles E. Mandelick, S. N. 358,748, filed April 27, 1929, Pneumatically Actuated Looping Tool;

George T. Walker, S. N. 359,408, filed April 30, 1929, Tool Handle for Machine for Relooping the Runs in Stockings and other Knitted Fabrics;

and has acquired or may be entitled to acquire or may hereafter acquire, further improvements thereon.

Plaintiff's Exhibit 26. 2902

AND WHEREAS said HOSIERY MOTOR MEND CORPORATION is the owner of the entire right, title and interest in and to the Trade Mark "VANITAS", heretofore used by it and its predecessor, Vanitas Corporation, a corporation formerly organized and existing under the laws of the State of Tennessee, in connection with Hosiery Repair Machines and parts thereof, together with the good will of the business in which used, and together with all rights of action, claims and demands at law or in equity by

Liber L139 page 548 2903

reason of past infringement thereof, and together with application for registration thereof filed in the United States Patent Office March 25, 1929, Ser. No. 281,294; and

WHEREAS, KAYSER HOSIERY MOTOR-MEND CORPORATION, a corporation organized and existing under the laws of the State of Delaware, having a place of business at Wilmington, Delaware, is desirous of acquiring the aforesaid entire right, title and interest of said HOSIERY MOTOR MEND CORPORATION, in and to the aforesaid inventions, applications, further improvements, trade mark and good will, and 2904 other rights now owned by it;

NOW THEREFORE, to all whom it may concern, be it known that the said HOSIERY MOTOR MEND CORPORATION, for and in consideration of the sum of One Dollar ($1.00) and other good and valuable considerations in hand paid, receipt whereof is hereby acknowledged, has sold, assigned, transferred and set over, and does by these presents, sell, assign, transfer and set over unto the said KAYSER HOSIERY MOTOR-MEND CORPORATION, its successors,

2905 *Plaintiff's Exhibit 26.*

assigns or legal representatives, the entire right, title and interest in and to the aforesaid improvements and inventions, together with said applications and any and all Letters Patent of the United States that may be obtained therefor; together with any and all further improvements thereon which said HOSIERY MOTOR MEND CORPORATION has acquired or may be entitled to acquire, or may hereafter acquire; together with the aforesaid trade mark and the good will of the business in which used together with all rights of action, claims and
2906 demands at Law or in Equity by reason of past infringement thereof, the same to be held and enjoyed by said KAYSER HOSIERY MOTOR-MEND CORPORATION as fully and entirely as same would have been held and enjoyed by said HOSIERY MOTOR MEND CORPORATION if this assignment and sale had not been made.

Liber L139 page 549

The said HOSIERY MOTOR MEND CORPORATION hereby authorizes and requests the Commissioner of Patents to issue Letters Patent on the said applications to the said KAYSER HOSIERY MOTOR-MEND CORPORATION, as the assignee of the entire right, title
2907 and interest in and to the same.

The said HOSIERY MOTOR MEND CORPORATION, for the considerations aforesaid, does hereby covenant and agree that it, its successors and assigns shall and will do all lawful acts and things, and make, execute and deliver any and all other instruments in writing, and any and all further applications, papers, affidavits, assignments, powers of attorney and other documents which may be desirable to more effectually secure to, or vest in said KAYSER HOSIERY MOTOR-MEND CORPORATION, its successors,

assigns or legal representatives, the whole right, title and interest in and to the said inventions, applications, and improvements, trade mark and good will of the business in which used, rights, titles and advantages sold, assigned, transferred and conveyed herein, or intended so to be.

Said HOSIERY MOTOR MEND CORPORATION, for itself, its successors and assigns, does further covenant and agree that it will aid the said KAYSER HOSIERY MOTOR-MEND CORPORATION in every way within its power to obtain, maintain and protect the said inventions and applications, and trade 2909
mark and good will of the business in which used, and that it will, without further expense to itself, and upon request, aid said KAYSER HOSIERY MOTOR-MEND CORPORATION, its successors and assigns, in every way in any litigation to prove the history of said inventions or any of them, and of said trade mark and the good will of the business in which used.

Liber L139 550

IN WITNESS WHEREOF, said HOSIERY MOTOR MEND CORPORATION has caused its name to be signed and its seal to be affixed by its proper officers thereunto duly qualified, this 16th day of May, 1929. 2910

HOSIERY MOTOR MEND CORPORATION,
By J. R. HARBECK,
Pres.

(Seal)

Attest:
IRENE R. DRAKE
Secretary

2911 *Plaintiff's Exhibit 26.*

STATE OF NEW YORK, }
COUNTY OF NEW YORK, } ss.:

On this 16th day of May, 1929, before me personally came JERVIS R. HARBECK, who, being by me duly sworn, did depose and say: that he resides at Manhattan; that he is the President of HOSIERY MOTOR MEND CORPORATION, the corporation above named; that he signed the foregoing instrument on behalf of said corporation pursuant to order of the Board of Directors thereof; that the seal affixed is
2912 the seal of said corporation and that it was so affixed by like order of the Board of Directors.

IRVING L. BRUNS
(Seal) (Notary Public).

IRVING L. BRUNS
Notary Public
Kings Co. No. 370 Kings Co. Reg. No. 500
Cert. filed New York Co. No. 924 New York Co. Reg. No. O-015
Cert. filed Queens Co. No. 987 Queens Co. Reg. No. 3124
Comm. Exp. March 30, 1930

2913 1184

RECORDED
Transfers of Patents
U. S. Patent Office
May 24, 1929
Liber L139 Page 547

THOMAS E. ROBERTSON

Plaintiff's Exhibit 27. 2914

KAYSER HOSIERY MOTOR MEND CORPORATION

PREFERRED STOCK

October 31st, 1929.

Holders of Preferred Stock of KAYSER HOSIERY MOTOR MEND CORPORATION at the close of business Oct. 31st, 1929.

2915

Shareholder	Shares
Abeles, Reynell & Campion, Inc., 150 Broadway, New York, N. Y.	1700
Richard W. Clarke, 30 Broad St., New York, N. Y.	240
E. J. De Sabla Jr., 165 Broadway, New York, N. Y.	250
Dresser & Escher, 115 Broadway, New York, N. Y.	100
Wm. T. Hall, 142-20 Cherry Ave., Flushing, Long Island, New York.	10
Hosiery Motor-Mend Corporation, 40 East 34th St., New York, N. Y.	15,340

2916

2917 *Plaintiff's Exhibit 27.*

Shareholder	Shares
Jackson & Curtis, 43 Exchange Place, New York, N. Y.	150
Julius Kayser & Co., 353 Fifth Ave., New York, N. Y.	2,000
Mitchell Schnall, 2144 Bronx Park East, Bronx, New York.	10
2918 Clarence W. Sinn, 353 Fourth Ave., New York, N. Y.	100
Charles Schiffendecker, 8819—77th St., Woodhaven, New York.	50
Edward Froede, 43 Exchange Place, New York, N. Y.	50
TOTAL	20,000

2919 This is to certify that the attached sheet No. 1, constitutes a true and correct list of the holders of all of the outstanding Preferred stock of Kayser Hosiery Motor Mend Corporation with their holdings of said stock according to our records at the close of business October 31st, 1929 aggregating Twenty Thousand (20,000) shares.

THE BANK OF AMERICA NATIONAL ASSOCIATION,
Transfer Agent,
By H. F. HUNHILS
Assistant Trust Officer.

Plaintiff's Exhibit 27. 2920

KAYSER HOSIERY MOTOR MEND CORPORATION

COMMON STOCK

October 31st, 1929.

Holders of Common Stock of KAYSER HOSIERY MOTOR MEND CORPORATION at the close of business Oct. 31st, 1929.

Shareholder	Shares
Abeles, Reynell & Campion, Inc., 150 Broadway, New York, N. Y.	70
Richard W. Clarke, 30 Broad St., New York, N. Y.	120
Connell, Wolfarth & Ilsley, 56 Pine St., New York, N. Y.	100
E. J. De Sabla Jr., 165 Broadway, New York, N. Y.	25
Wm. T. Hall, 142-20 Cherry Ave., Flushing, Long Island, New York.	5
George F. Handel, 165 Broadway, New York, N. Y.	1,000
Hosiery Motor-Mend Corporation, 40 East 34th St., New York, N. Y.	48,400

2921

2922

2923 *Plaintiff's Exhibit 27.*

Shareholder	Shares
Jackson & Curtis, 43 Exchange Place, New York, N. Y.	75
Julius Kayser & Co., 353 Fifth Ave., New York, N. Y.	50,100
Mitchell Schnall, 2144 Bronx Park East, Bronx, New York.	5
2924 Clarence W. Sinn, 353 Fourth Ave., New York, N. Y.	50
Edward Froede, 43 Exchange Place, New York, N. Y.	25
Charles Schiffendecker, 8819—77th St., Woodhaven, New York.	25
TOTAL	100,000

2925 This is to certify that the attached sheet No. 1, constitutes a true and correct list of the holders of all of the outstanding Common stock of Kayser Hosiery Motor Mend Corporation with their holdings of said stock according to our records at the close of business October 31st, 1929, aggregating One Hundred Thousand (100,000) shares.

THE BANK OF AMERICA NATIONAL ASSOCIATION,
Transfer Agent,
By H. F. HUNHILL
Assistant Trust Officer.

Plaintiff's Exhibit 28. 2926

KAYSER HOSIERY MOTOR MEND CORPORATION

PREFERRED STOCK

March 19th, 1931.

Holders of Preferred Stock of KAYSER HOSIERY MOTOR MEND CORPORATION at the close of business 3/19/31: 2927

Shareholder	Shares
Abeles, Reynell & Campion, Inc. 150 Broadway, New York, New York.	1,500
Marjory S. Acklin, 3550 Ridgewood Road, Ottawa Hills, Toledo, Ohio.	15
Lewis M. Adams, 435 E. 24th St., New York, New York.	322 2928
Roland W. Betts, 2 Broadway, New York, New York.	20
F. L. Bittles & Co., 165 Broadway, New York, New York.	5
Richard W. Clarke, 30 Broad St., New York, New York.	240

2929 *Plaintiff's Exhibit 28.*

Shareholder	Shares
John J. Cone, 120 Broadway, New York, New York.	30
Oswald Crotta, 30 Broad St., New York, New York. Room 1326.	25
E. J. De Sabla Jr., 165 Broadway, 2930 New York, New York.	250
Dobbin & Co., 26 Broadway, New York, New York.	170
Dresser & Escher, 115 Broadway, New York, New York.	100
Wm. T. Hall, 142-20 Cherry Ave., Flushing, Long Island, New York.	10
2931 Hosiery Motor-Mend Corporation, 40 E. 34th. St., New York, New York.	14,263
Jackson & Curtis, 43 Exchange Place, New York, New York.	150
Julius Kayser & Co., 353 Fifth Ave., New York, New York.	2,000

Plaintiff's Exhibit 28. 2932

Shareholder	Shares
Harry A. King, 2 Broadway, New York, New York.	20
Norman S. Mac Millan, c/o Green, Ellis & Anderson, 100 Broadway, New York, New York.	300
Rodney Miller, 15 William St., 2933 New York, New York.	48
Murfey, Blossom & Co., Guardian Bldg., Cleveland, Ohio.	300
William E. Power, 2 Broadway, New York, New York.	10
Mitchell Schnall, 2144 Bronx Park East, 2934 Bronx, New York.	10
Clarence W. Sinn, 353 Fourth Ave., New York, New York.	100
Dore Stern, c/o Rodney Miller, 15 William St., New York, New York.	2

2935 *Plaintiff's Exhibit 28.*

Shareholder	Shares
Jessie M. Stewart, c/o Mrs. W. C. Acklin, 3550 Ridgewood Road, Ottawa Hills, Toledo, Ohio.	15
D. S. Walton, Jr., c/o Locke & Crane, 67 Wall St., New York, New York.	50
2936 Lorrin A. Herkins, 41 Park Row, New York City.	45
	20,000

This is to certify that the attached sheets Nos. 1 and 2, constitute a true and correct list of the holders of all of the outstanding Preferred stock of Kayser Hosiery Motor Mend Corporation with their holdings of said stock according to our records at the close of business March 19th, 1931 aggregating
2937 Twenty Thousand (20,000) shares.

THE BANK OF AMERICA NATIONAL ASSOCIATION
Transfer Agent
By:— J. E. ROBERTSON
Assistant Trust Officer.

Plaintiff's Exhibit 28. 2938

KAYSER HOSIERY MOTOR MEND CORPORATION

COMMON STOCK

March 19th, 1931.

Holders of Common Stock of KAYSER HOSIERY MOTOR MEND CORPORATION at the close of business 3/19/31: 2939

Shareholder	Shares
Abeles, Reynell & Campion, Inc., 150 Broadway, New York, New York.	50
Marjory S. Acklin, 3550 Ridgewood Road, Ottawa Hills, Toledo, Ohio.	150
Lewis M. Adams, 435 E. 24th St., New York, New York.	808 2940
Helen G. Anderson, c/o Knox Hat Co., 711 5th Ave., New York, New York.	500
J. S. Bache & Co., 42 Broadway, New York, New York.	2,550
Betts, Power & King, 2 Broadway, New York, New York.	25

2941 *Plaintiff's Exhibit 28.*

Shareholder	Shares
Richard W. Clarke, 30 Broad St., New York, New York.	120
John J. Cone, 120 Broadway, New York, New York.	15
Connell, Wolfarth & Ilsley, 56 Pine St., New York, New York.	100
2942 Oswald Crotta, 30 Broad St., New York, New York. Room 1326.	13
E. J. De-Sabla Jr., 165 Broadway, New York, New York.	25
Dobbin & Co., 26 Broadway, New York, New York.	125
Wm. T. Hall, 142-20 Cherry Ave., 2943 Flushing, Long Island, New York.	5
George F. Handel, 165 Broadway, New York, New York.	1,000
J. R. Harbeck, c/o Harbeck & Pell, 120 Broadway, New York, New York.	50

Plaintiff's Exhibit 28.

2944

Shareholder	Shares
Lorrin A. Herkins, 41 Park Row, New York, New York.	75
Hosiery Motor-Mend Corporation, 40 E. 34th. St., New York, New York.	40,730
Jackson & Curtis, 43 Exchange Place, New York, New York.	75

2945

Julius Kayser & Co., 353 Fifth Ave., New York, New York.	50,100
Byrd M. Latham, c/o Harbeck & Pell, 120 Broadway, New York, New York.	87
Norman S. Mac Millan, c/o Green, Ellis & Anderson, 100 Broadway, New York, New York.	150

2946

Rodney Miller, 15 William St., New York, New York.	16
Murfey, Blossom & Co., Guardian Bldg., Cleveland, Ohio.	3,000
Mitchell Schnall, 2144 Bronx Park East, Bronx, New York.	5

2947 *Plaintiff's Exhibit 28.*

Shareholder	Shares
Clarence W. Sinn, 353 Fourth Ave., New York, New York.	50
Dore Stern, c/o Rodney Miller, 15 William St., New York, New York.	1
Jessie M. Stewart, c/o Mrs. W. C. Acklin, 2948 3550 Ridgewood Road, Ottawa Hills, Toledo, Ohio.	150
D. S. Walton, Jr., c/o Locke & Crane, 67 Wall St., New York, New York.	25
	100,000

2949 This is to certify that the attached sheets Nos. 1 and 2, constitute a true and correct list of the holders of all of the outstanding Common stock of Kayser Hosiery Motor Mend Corporation with their holdings of said stock according to our records at the close of business March 19th, 1931 aggregating One Hundred Thousand (100,000) shares.

THE BANK OF AMERICA NATIONAL ASSOCIATION
Transfer Agent
By:— J. E. ROBERTSON
Assistant Trust Officer.

Plaintiff's Exhibit 31. 2950

7094
Ashland 7095
7096

KAYSER HOSIERY MOTOR-MEND CORP.
Vanitas System
40 East 34th Street
New York

February 7th, 1930.

TO THE CUSTOMERS OF JULIUS KAYSER & CO.: 2951

In May of 1929 we wrote you soliciting your interest in the Vanitas System of hosiery repair, operated by Kayser Hosiery Motor-Mend Corporation.

Although the success of the System was assured at that time, there were relatively few installations, and some merchants indicated that they would prefer to wait until the System was a proved success. You, evidently, had that thought because we have not listed you among our customers.

We are very pleased to advise you that now we have 500 actual machine installations, all in a short period of eight months. This has been done 2952
strictly on the merits of the proposition. During this time we have learned a great deal regarding making the hosiery repair departments of our customers a success, and we feel sure that the time is now ripe for you to make an interested and serious inquiry into the merits of the Vanitas System for your store.

The best method of procedure is to visit the offices of either Julius Kayser & Co. or the Kayser Hosiery Motor-Mend Corp., 40 East 34th St., for

2953 *Plaintiff's Exhibit 31.*

a demonstration and inquiry regarding cost and installation.

The Vanitas System is a proved success. You will do yourself and your store good by thoroughly investigating it.

Very truly yours,

KAYSER HOSIERY MOTOR-MEND CORP.

LM:LK

2954 Address all correspondence to the Corporation

2955

PLAINTIFF'S EXHIBIT No. 40

Instructions for Knitting CHILDREN'S Fancy Sport Hose With Turn-Down Cuff

F. B. L.

THESE instructions, when carefully followed, will produce the popular Children's Hose and Golf Hose, rapidly. Every owner of a Gearhart Knitting Machine will find the knitting of this type of hose very easy to do after they have successfully learned the five principal and fundamental parts of knitting, as used in the construction of men's hose, taught in their Instruction Book furnished with their Outfit.

To make sure that no time and yarn shall be wasted, the Company advises that a sample hose knit with these instructions, carefully followed, shall be submitted to the Company for their O.K. or correction, if any.

The Company will gladly furnish, without charge, a sample of this hose as a further guide, if so requested by the Machine owner. Also, the Company will promptly give additional instructions on any part of this knitting as may be further necessary, upon the request of the owner.

Only the combination of color with the kind of yarn furnished by the Company knit into the Children's Hose will be accepted and paid for at the $3.00 per dozen rate as per the contract, to the Machine owner.

Using Size No. 3-16 Best Quality Worsted Yarn on the 80 Needle Cylinder

REVISED FEBRUARY 1925

Destroy Previous Instructions

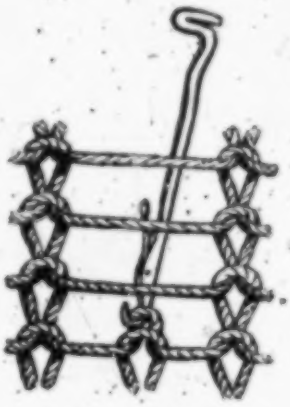
Issued By

GEARHART KNITTING MACHINE CO.

Clearfield, Penna.

987

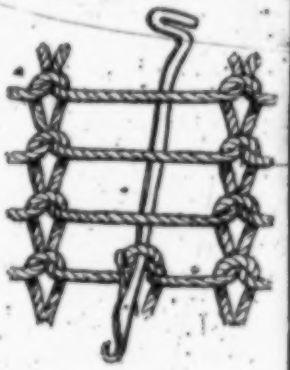
Picking Up a Dropped Cylinder Stitch While Knitting is on the Machine



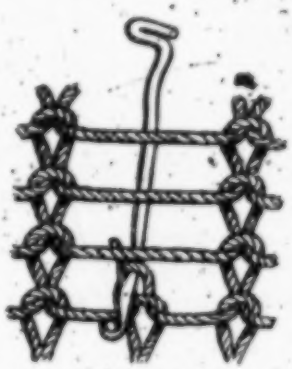
PICTURE 1

Place **Cylinder Needle** down between the knitting and the **cylinder** under all of the dropped stitches. Insert the hook of the needle through the loop of the last stitch which is completely formed. (See **Picture 1.**)

Push **needle** down until the hooked **loop** slides back and drops off the **needle latch** to the position shown in **Picture 2.**



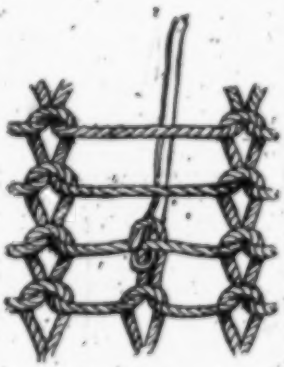
PICTURE 2



PICTURE 3

Turn **needle** on its side and pull back up guiding the **needle** so the latch goes under the cross-thread above as illustrated in **Picture 3.**

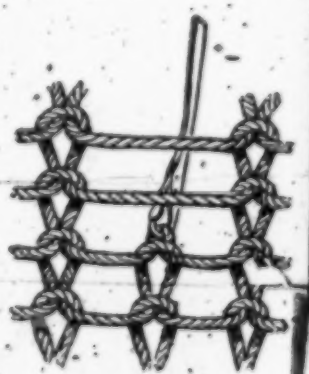
Turn **needle** upright, keeping the **latch** under the one cross-thread. **PULL UPWARDS.** This action will cause the **latch** to force the cross-thread into the **hook** of the **needle.** The old loop will then slide down over and off the **needle** to form a new stitch as **Pictures 4 and 5** illustrate.



PICTURE 4

Push the **needle** down again so the newly formed stitch slides back over and off the needle **latch** as shown in **Picture 2.** Repeat these actions until all the cross-threads have been picked up, then place this last loop up over the **cylinder needle** which dropped it.

Dropped ribber needle stitches discovered after the ribber has been removed from the machine can not be picked up in the same manner as cylinder needle stitches. Instead of placing the needle under the cross-threads, it is placed inside the knitting with the hook catching the last loop. Then proceed to pick up the cross-threads and form stitches with the needle hook and latch, pushing the needle down through the knitting each time.



PICTURE 5

© 1934 GEARHART KNITTING MACHINE CO., Clearfield, Pa.

J. M. Armour,

Knitting-Needles.

No. 52,256. Patented Jan. 30. 1866.

Fig. 1.

Fig. 2.

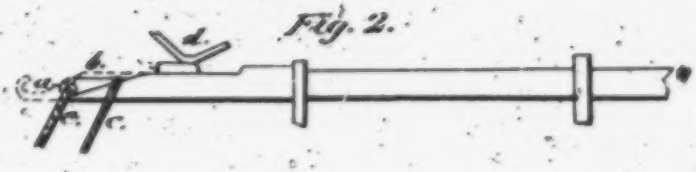


Fig. 3.

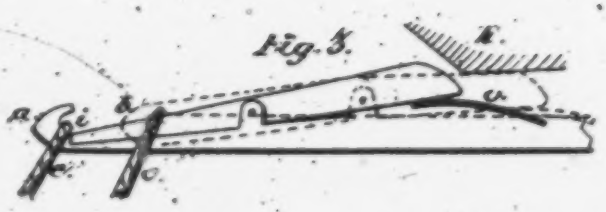


Fig. 4.

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John J. Halsted

Inventor:
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By W. C. Dodge
Attorney

UNITED STATES PATENT OFFICE.

J. M. ARMOUR, OF CRAFTSBURY, VERMONT.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 52,256, dated January 30, 1866.

To all whom it may concern:

Be it known that I, J. M. ARMOUR, of Craftsbury, in the county of Orleans and State of Vermont, have invented certain new and useful Improvements in Needles for Knitting-Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists in a novel mode of constructing a needle for knitting-machines, which shall operate both as a needle for forming a new stitch and also as a stitch-holder or, in other words, providing the needle with a device for securely locking and holding the stitch on the needle.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

I first construct a needle with a hook, *a*, at its point or outer end, as shown in the several figures of the drawings. This hook is for the purpose of receiving the thread and drawing it through the loop or stitch previously formed. I then attach to this needle a stitch-holder, *b*, which may consist of a sliding piece fitted either within or upon the body of the needle, as shown in Figs. 1, 2, and 4, and arranged to slide to and fro within or upon the needle.

It will be observed that the front end of the stitch-holder *b* is made of such a width vertically that when it is shoved forward, as shown in Figs. 2 and 4, its upper edge shall come flush with the upper edge of the hook *a*, whereby the thread held by the hook *a* will be securely locked therein, and at the same time the upper surface of *b* will form a bridge upon which the previous stitch or loop may ride off over the hook, and thus be carried over the new stitch, or, in other words, the stich *c* will be held upon the piece *b*, while the new stitch *e* will be drawn through *c* and the latter then thrown off the needle.

Fig. 3 represents a modification of the same device, the holder *b* in that case being pivoted to the needle in such a manner that when down its front end shall rest either in a recess in the shank of the needle or by its side, so that the upper surface of *b* shall come flush with the inner portion or surface, *i*, of the hook *a*, and thereby form a continuous smooth surface, upon which the old or previous stitch *c* may ride up as the needle is thrust forward to receive the thread for forming the new stitch *e*. When this has been done the rear end of the holder *b* is depressed, by which movement its outer end is thrown up, as shown in red, whereby it is made to lock the stitch *e* securely in the hook, and at the same time form a bridge upon which the previous stitch *c* will be made to ride over the new stitch or loop *e* as the needle is drawn back, drawing the stitch *e* through *c*, the latter being thrown off the needle as before.

When the latter style of needle is used a spring, *o*, may be located as shown in Fig. 3, for the purpose of holding the front end of *b* down in position while the needle is being moved forward to receive the new stitch *e*, by which movement of the needle the stitch *c* is shoved up on the needle, as shown. A cam, *h*, may be so located that, when the needle is drawn back after receiving the thread for the stitch *e*, the rear end of *b* shall be depressed thereby, thus throwing up the front end of *b* and completing the operation of drawing the loop *e* through *c* and throwing the latter off, as already described.

When the style of needle shown in Figs. 1 and 4 is used the required motions of the needle and the holder may be given by cams working in the notches *l l*, as shown in Fig. 1.

It will be observed that the notches in the holder *b* are wider than those in the needle, so that if a cam were moving therein it would move the needle forward until the face of the cam should strike against the face of the notch in the holder *b*, when both the holder and the needle would be moved together. In reversing the motion the same result would be produced, the portion containing the small notch being moved first and then both together. The distance that the needle should move first should be sufficient to move it forward until the front end of the holder *b* should be covered by the stem of the needle, so that as the two shall then move forward together, the front end of the holder *b* should form no obstruction to the sliding of the stitch *c* upon the shank of the needle. In reversing the motion of the needle it would first be moved back far enough to bring the inner end of the hook in contact

with the end of holder *b*, and then both would continue the movement backward far enough to draw the loop *e* through *c* and throw the latter entirely off the needle.

In Fig. 4 a spring is shown applied to the holder to move it up and lock the thread *e* in the hook *a*, the remaining movements being imparted by cams suitably arranged.

In Fig. 2 the holder *b* is shown provided with a projection arranged to impinge against a fixed piece, *d*, for the purpose of retarding the movement of *b* while the needle makes the first part of its movement forward to receive the thread for the new stitch *e*, the previous stitch *c* riding up on the needle over the holder *b*, as the needle and holder are both carried forward together during the latter part of its forward movement. On the return movement of the needle the projection of the holder *b* hits against the cam *d*, whereby the movement of the holder is retarded until the hook is brought in contact with it, thus locking the stitch *e* in and forming a bridge upon which the stitch *c* rides off the end of the needle over *e*.

It is obvious that a great variety of mechanical devices may be used to impart to t needles the requisite movements, the foreg ing being intended simply to illustrate sou of the methods, it being understood that I not limit myself to these methods.

Having thus fully described my inventio what I claim is—

1. The needle provided with the hook *a*, combination with the pivoted stitch-holder having its front end arranged to lay in the cess in the shank of the needle when depress and to come flush with the upper surface of t hook *a* when raised, as shown in Fig. 3.

2. In combination with the needle and t pivoted stitch-holder *b*, as above described, t spring *o*, to operate the latter, as shown a described.

3. Operating the needle and stitch-hold by arranging them to move or slide longitu inally, and having the latter impinge again a cam or fixed piece, as shown in Figs. 2 a 3, and as herein described.

J. M. ARMOUR.

Witnesses:
W. C. DODGE,
JAMES LEE.

L. E. SALISBURY.

KNITTING-MACHINE NEEDLES.

No. 189,501. Patented April 10, 1877.

Fig. 1.

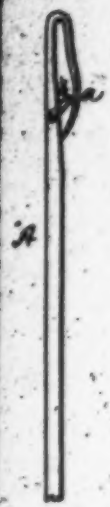


Fig. 2.

Fig. 3.

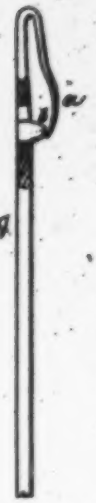
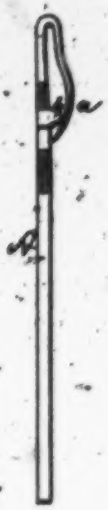


Fig. 4.



Attest:
Philip F. Larner
A. P. Blandford

Inventor:
Levi E. Salisbury
By Wm. G. Ward
Attorney

UNITED STATES PATENT OFFICE.

LEVI E. SALISBURY, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 189,591, dated April 10, 1877; application filed January 17, 1877.

To all whom it may concern:

Be it known that I, LEVI E. SALISBURY, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Knitting-Machine Needles; and I do hereby declare that the following specification, taken in connection with the drawings furnished, and forming a part of the same, is a clear, true, and complete description thereof.

The object of my invention is to produce a needle which in itself shall have the capacity of retaining the loop last formed in case of a break in the yarn, or in case, from any cause, the needle has failed to be fed with yarn, thus obviating the necessity of stop-motions, or at least positively preventing the dropping of stitches from the needles, even if a stop-motion be employed.

As a result of another invention made by me, which constitutes the subject of a separate application for Letters Patent, I have produced rigid hook-needles, which have the capacity above set forth; but my present invention relates to what are termed "spring-hook or barbed needles." These needles, as heretofore constructed, have been either normally open or normally closed, and they have been generally employed in connection with separate mechanical devices, which, in case they are normally open, close the hooks as by a "presser" after they pass the point at which they should receive the yarn to form a new loop, or which in case they are normally closed open them to receive the yarn.

I am also aware that normally-closed spring barb-needles have heretofore been provided with a long slide, having at the upper end a hook, and at the lower end a projecting finger, with the upper surface of which the loop last formed engages as the needle ascends.

In operation these slides are controlled, as the needle descends, by contact of the yarn or the loop with the hook at the upper end of the slide within the main hook, and, as the needle ascends, by the contact of the loop last formed with the projecting finger.

My invention consists of a knitting-machine needle having a spring-hook which is normally closed, and a moving finger which is attached to the shank of the needle, is wholly located within its hook, and is arranged to engage with the inner surface of the spring-hook for maintaining the hook in an open condition, or for permitting it to close.

This finger is wholly controlled by the yarn, whether it be newly fed to the needle or whether it constitutes the loop last formed by the needle, and the yarn, whether newly fed or in the loop last formed, alternately raises or depresses this finger by alternate contact with its lower and its upper surface.

To more particularly describe my invention I will refer to the accompanying drawings, in which—

Figure 1 represents in side view one of my needles having a pivoted finger, with the spring-hook closed. Fig. 2 represents the same with hook open. Fig. 3 represents in side view, and partially in section, one of my needles having a sliding finger, with the hook open. Fig. 4 represents the slide-finger needle with the hook closed.

A denotes the shank of the needle with its spring-hook as at *a*. The heel of the needle may be made in any desired manner, according to the character of the needle-cam which is to be used therewith. The hook is tempered while closed, so that it is normally in a closed condition.

The movable finger is shown at *b*. I prefer that it be pivoted to the shank, as illustrated in Figs. 1 and 2, although approximately desirable results can be attained if the finger constitutes a part of a slide, which occupies a slit in the shank, as illustrated in Figs. 3 and 4. It is quite immaterial in what manner the movable finger be attached to the shank, provided that when in its most elevated position its outer end permits the hook to be closed, and when in its lowest position its outer end engages with the inner surface of the spring-hook sufficiently near the point to open the hook and maintain it in that condition.

Other modes of attaching the movable finger to the shank may be employed, and I am well aware, and these may be varied almost indefinitely without departing from the spirit of my invention.

Needles having a spring-hook which is normally closed, and a movable finger on the shank which can engage with the spring-

hook, substantially as shown, will operate as follows: On rotating the machine it will first be necessary to depress all the fingers, whereby all the hooks will be opened. The work will then be cast up in a manner well known by forming a loop on each needle. The introduction of the yarn raises the finger and allows the hook to close. As the needle rises the loop depresses the finger and passes between its end and the hook, leaving the latter open for the reception of new yarn, which, when it enters, engages with the finger and elevates it, and this permits the hook to close for passing through the loop in forming a new one. If no yarn be fed to the needle, or if it should fail to engage therewith, the hook will still remain open for the re-entrance of the loop last formed, which will be retained therein instead of being cast off, as would be the case if the movable finger were not employed.

It will be seen that the movable finger may readily be combined with fine as well as coarse needles; that it will prevent the dropping of stitches or loops; that a needle can be raised out of service because the loop on the needle passes freely over the end of the finger; that a stop-motion will not be required on machines in which such needles are employed, or if a stop-motion be employed the finger will obviate the casting off of a loop if the needle fail to receive its yarn, even though said yarn were not broken or exhausted, and the stop-motion should for that reason fail to operate.

It is to be distinctly understood that I do not limit my invention to a movable finger of any particular form, nor to any particular method of mounting the same on the shank of the needle, provided always that said finger be located wholly within the main hook.

I claim as new and desire to secure by these Letters Patent—

A knitting-machine needle having a spring-hook which is normally closed, and a movable finger which is attached to the shank of the needle, located wholly within the spring-hook, and arranged to engage with the inner surface of said hook, substantially as described.

LEVI B. SALISBURY.

Witnesses:
JOHN C. PURKIS,
CHARLES W. PECK.

Feb. 4, 1930. W. D. VAN DYKE 1,745,462

MACHINE FOR REPAIRING RUNS IN FABRICS

Filed Aug. 28, 1928 2 Sheets-Sheet 2

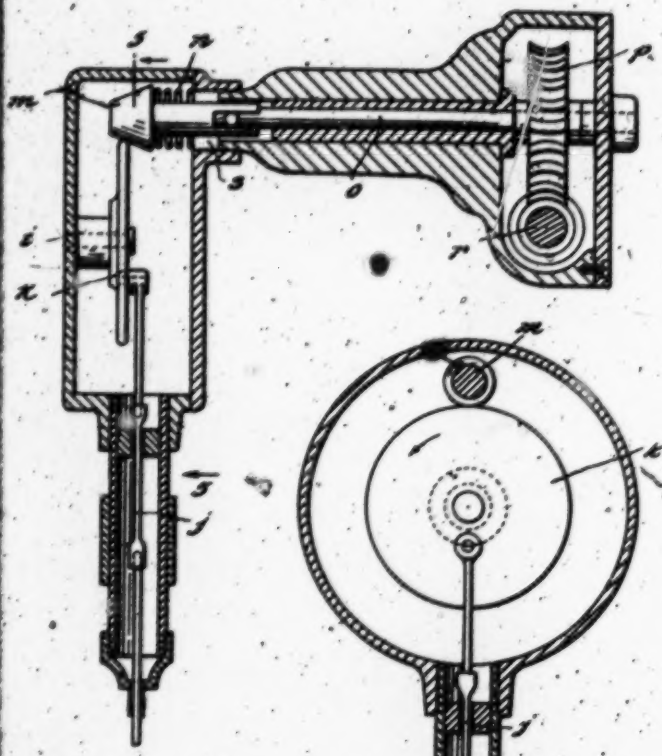


Fig.4.

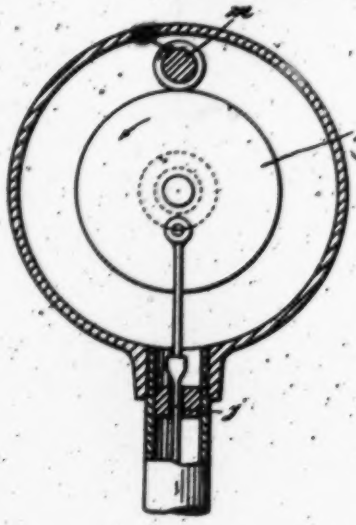


Fig.5.

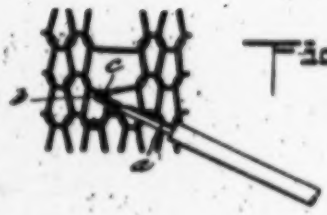


Fig.6.

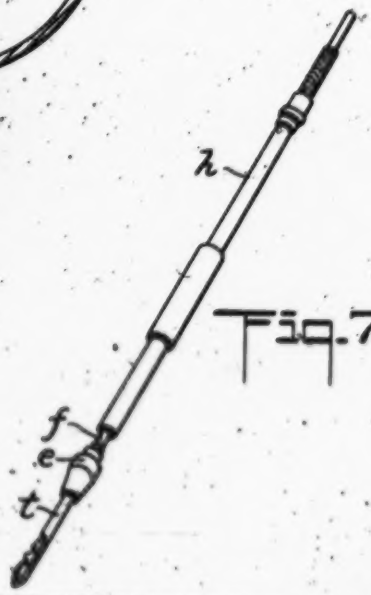


Fig.7.

INVENTOR
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Harris & Orton
ATTORNEY

MACHINE FOR REPAIRING RUNS IN FABRICS

Filed Aug. 28, 1928 2 Sheets-Sheet 1

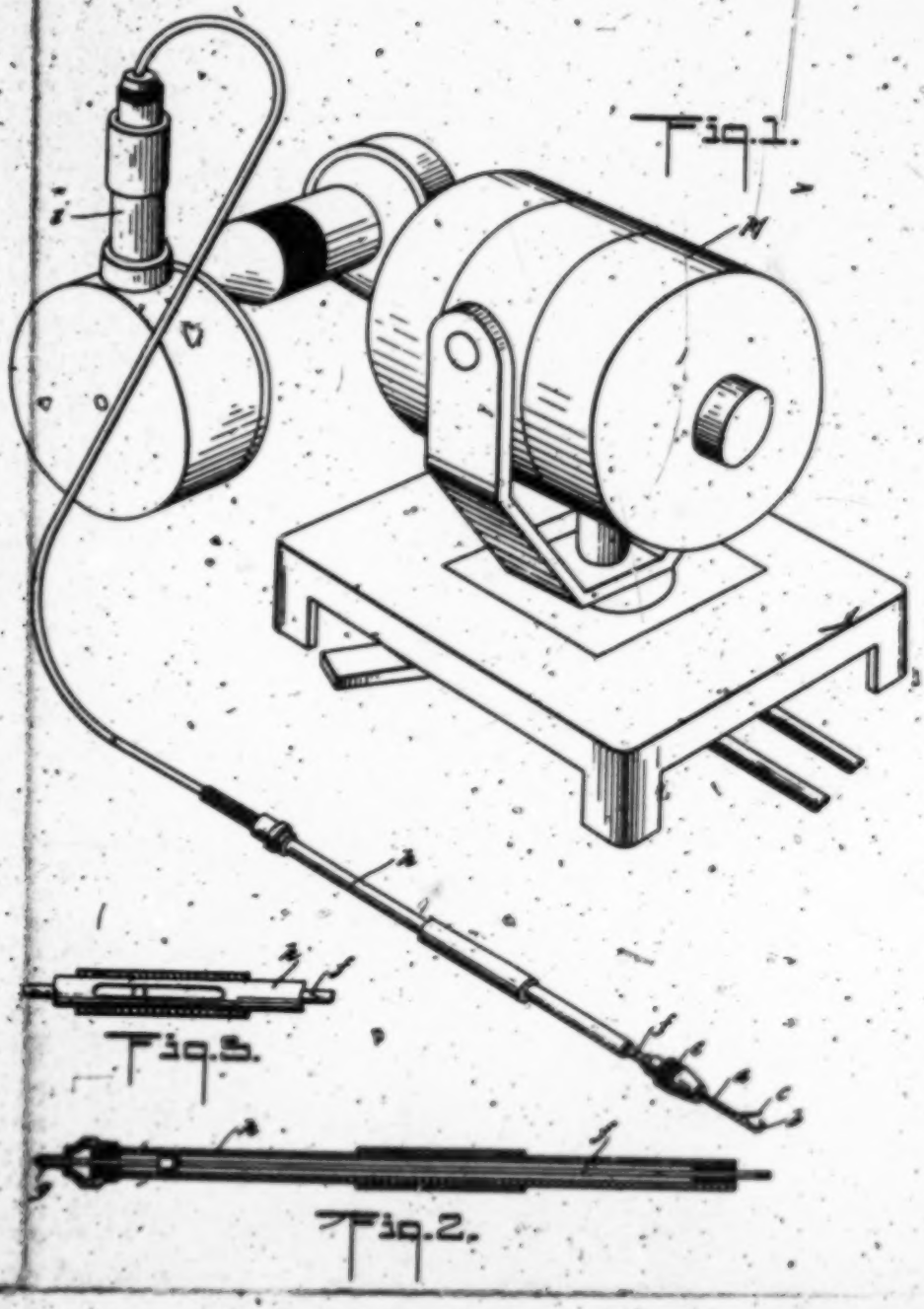

Fig. 1.

Fig. 3.

Fig. 2.

INVENTOR
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BY
Warren S. Oster
ATTORNEY

UNITED STATES PATENT OFFICE

WILLIAM DEADERICK VAN DYKE, OF CHATTANOOGA, TENNESSEE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KAYSER HOSIERY MOTOR MEND CORPORATION, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

MACHINE FOR REPAIRING RUNS IN FABRICS

Application filed August 28, 1928. Serial No. 302,525.

The invention relates to a machine for reforming or relooping the dropped loops which forms runs in stockings and other knitted fabrics.

It is a common practice at present in repairing the runs or ravels in knitted fabrics to reform the dropped stitches or loops by means of a hook needle sometimes provided with a pivoted latch, and thus called a latch needle, and which needle is reciprocated manually through the fabric while it is advanced along the length of the run, during which reciprocity movement the ladders forming the run are successively caught, looped over the next succeeding ladder and the operation repeated to restore practically the continuity of the original looped knitted structure.

Such manual operations are necessarily slow and tedious and the success is dependent largely upon the skill of the operator. The primary object of the invention is to provide for a more rapid relooping of the run in the knitted fabrics than is physically possible by practicing the known manual operation of a looping needle. It is required for the most perfected form of repair work of this character that the tension on the reformed loops and in general the arrangement, location and set of the reformed loops should approximate as closely as possible to the characteristics of the loops which form the balance of the fabric. However, the requisite uniformity and evenness of tension on the threads and the duplication of the machine formed loops is practically impossible to attain following the usual manual relooping operation.

Accordingly, another object of the invention is to provide a simple form of machine for relooping the dropped stitches forming a run in the knitted fabric rapidly and with the uniformity of tension and resulting appearance characterizing the dropped loops so that the reformed part shall have the appearance of the remaining portion of the machine knit fabric. Broadly, this object is attained by duplicating in so far as is physically possible, the same mechanically exact knitting operation as was used to form the original line of loops which became unfastened and thus formed the run. One means for attaining this result is by manually maintaining a freely movable looping needle of any conventional design in operative position in the run to be repaired while the needle is being reciprocated mechanically, preferably at a speed faster than can be obtained by manual manipulation, and at the same time by regulating the length of reciprocatory movement so that there is attained a nicety in the resulting uniformity in tension placed on the threads as they are successively relooped one over the other and in general a duplicating of the original machine formed loops.

Another object of the invention is to provide a simplified means for automatically disconnecting the driving connection between the source of mechanical power and the reciprocating needle when the needle meets with a resistance greater than that which has been prefixed as necessary to the proper functioning of the needle thereby to prevent the needle from injuring the fabric being repaired, or itself.

Still another object of the invention is to provide an automatic cut-off of the power when the needle is thrown below the work or is drawn above the work beyond a predetermined point.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawings and in part will be more fully set forth in the following particular description of one form of mechanism embodying the invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawing:

Fig. 1 is a perspective of the machine.

Fig. 2 is a longitudinal section of the tool sleeve.

Fig. 3 is a fragmentary longitudinal section of the same showing the guide key.

Fig. 4 is a cross section showing the drive.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a view showing how the pivoted latch form of tool works on a run in a piece of hosiery and Fig. 7 is a modified form of the tool shown in Fig. 1 in which a sliding

latch needle replaces the pivoted latch needle.

Referring to the showing in Fig. 1, the tool comprises a needle *a* with a hook *b* on its end, and a swinging latch *c* that normally swings open to permit the grasping of the thread as shown in Fig. 6. However, when the needle is used to pull a loop through a loop, the latch *c* guides the thread of the latter loop from being hooked by the hook which has grasped the first loop. However, this much of the construction is old, and is now used in connection with hand operated tools. Sometimes a sliding latch form of needle *t* is used, as shown in Fig. 7 in place of the pivoted latch needle and both of which needles will be referred to in the claims as having a thread actuated latch for closing the hook. In the showing in Fig. 7, the specific form of needle illustrated is more fully described in the patent to Finch, No. 1,674,508.

In either case the needle is held in a small chuck *e* on the end of the reciprocating rod *f*, which passes through the handle or sleeve *h*. At the upper end of this handle the flexible wire *g* passes out the handle and into the machine housing *i*, the wire being connected by a connecting rod *j* with a revolving crank wheel *k*. This crank wheel has a relatively small contact with the driving cone *m*, which is pressed against the crank wheel by means of the spring *n*. This driving cone is splined onto the driving shaft *o* to slide freely. The driving shaft is driven off the motor M by means of a worm wheel *p*, and a worm *r*. The tension of the spring *n* may be adjusted by a nut *s*.

This is intended as a very light driving connection and by adjusting the nut *s* the driving connection can be arranged to slip when a given resistance is met by the reciprocating needle. If, for instance, the operator pulls the loops or the threads too far above or below the work, the tension of the threads at this point can be made to overcome the engagement of the friction drive, and consequently the machine will automatically stop and prevent injury to the work by means of pulling too hard on the threads. Furthermore, by simply placing the finger on the reciprocating chuck *e* the machine can be stopped at any time, as this will easily overcome the driving engagement of the clutch members.

In operation and assuming that the motor is running, and with the parts in the position shown, the needle is inserted through the fabric which has been stretched to dispose the run in a straight line with the hook end of the needle engaging the last formed loop at the end of the run. It is preferred practice to work the needle conventionally reciprocating it up and down through the fabric for a few times, forming the first one or two loops manually to insure a smooth start for the succeeding rapid mechanically actuated operation. The motor is started or as in one form of the invention where the driving mechanism between the motor and needle includes a manually actuated control clutch of conventional form, the clutch is released thus connecting the speeding motor to the motion translating mechanism and the flexible wire illustrated and with it the needle is caused to reciprocate at high speed. The operator then simply holds the needle as it is fed along the length of the run with the hook side in advance until the opposite end of the run is reached when the operation is interrupted, the needle removed and the last loop caught and permanently secured as by stitching following the usual conventional practices in this respect.

During this operation and considering the case where a pivoted latch needle is used the needle functions conventionally in that in its forward movement when inserted between the loop which defines one end of the run and the first unlooped thread or ladder of the run, the loop slides over the free end of the latch. As the needle is raised in its reverse direction the loop sliding back against the latch swings it against the hook. The latch in the meantime reaches for and grasps the next thread of the ladder which is held by the closing of the hook until a new loop is formed and which formed loop is drawn through the previous loop which is then cast off the needle. This successive reaching forward for the next ladder thread, engaging the same, forming a loop by drawing the engaged thread through the preceding loop and then casting off the preceding loop is continued to the end of the run as is well known in relooping operations and needs no detailed description.

If the operator holds the tool in the proper position with respect to the work the reciprocations will not take place too far above or below the plane of the work, and there will be no strain on the work. The machine will keep on working, but as soon as the operator changes the position of the tool so as to put undue strain on the work, the machine will automatically throw off. The operator has the reciprocating needle under complete control at all times by simply placing the thumb or finger on the chuck to stop the operation.

While operating on the fabric, it will be held in any convenient manner so as to most conveniently expose the run. This may be done in any conventional manner now used where the needle is actuated manually. Preferably and in the case where a finely woven stocking is being repaired, it may be stretched over a specially designed holding frame. An embroidery frame or an egg cup have been found particularly convenient as a fabric holding means as they permit an easy advancing of the fabric in the case of a long

run and as the material can be stretched rigidly a firm tensioned section of material is exposed for operation.

It is understood that in those cases where one relooping operation is not sufficient to eliminate the showing of the run as where there is more than one line of drop stitches, the operation may be repeated until all of the runs have been taken up, relooped, and the fabric restored to its original completely knitted condition.

By means of the apparatus thus described it is possible to reloop a run more rapidly than has been possible heretofore with the relatively slow manual operation. The practice of the operation does not require a high degree of skill on the part of the operator. It is simply necessary for her to start the operation, and while keeping the ladders open and taut advance with the needle along the length of the run. She is not required to pay any attention to the rate of reciprocatory movement of the needle, nor to the distance of advance or retreat of the needle for all of these variables are set and regulated mechanically.

As a result, there is a resulting uniformity of reciprocatory movement of the needle in its successive looping operations insuring a uniformity in the formation of the successive loops and the elimination of irregularities which are apt to be produced by nonvariance in the nervous impulses of the manually actuated strokes even by the skilled operator. In general, the mechanical actuation of the latch needle, in distinction from its usual manual actuation, has the effect of more nearly simulating the action of the needles which originally knit the fabric with the result that the reformed loops are not distinguishable from the loops forming the remainder of the fabric and there is produced a finished fabric which bears no evidence of having been repaired.

By means of the friction clutch it is possible to release automatically the driving connection between the motor and the needle whenever the needle meets resistance to its reciprocatory movement, thus protecting both the fabric and the needle from mutilation.

Claims:

1. In a machine for relooping the dropped loops forming a run in a knitted fabric, the combination of a reciprocating looping needle free to move bodily and held by the hand in operative position relative to the run in the fabric to reloop the dropped loops as the needle advances along the run and power means operatively connected to the needle to cause it to function.

2. In a machine for relooping the dropped loops forming a run in a knitted fabric, the combination of a hand tool comprising a handle by means of which the tool can be held manually in operative position relative to the run in the fabric, a looping needle mounted for operative movement in the handle and adapted to reform the dropped loops and power mechanism acting on the needle to cause it to function mechanically.

3. In a device for relooping the runs in a knitted fabric, the combination of a motor, a power transmitting wire, means between one end of the wire and the motor for translating the rotary movement of the motor into reciprocatory movement of the wire, a tool chuck secured to the free end of the wire, a looping needle demountably positioned in the chuck, and hand supporting means through which the free end of the wire reciprocates for holding the needle in operative position as it is guided along the run to be relooped.

4. In a machine for repairing runs in knitted fabrics, the combination of a motor, a power transmitting wire having one end operatively connected to the motor to be reciprocated thereby and a loop forming needle attached to the other end of the wire and a handle for supporting the needle, adapted to be held manually as the needle is advanced along the run under repair while the needle reciprocates relative to the handle to reloop the dropped loops forming the run.

5. In a machine for repairing runs in knitted fabrics, the combination of a loop forming needle adapted to reform the dropped loops forming the run, a handle for holding the needle in position guided along the length of the run, and mechanism for reciprocating the needle relative to the handle, said mechanism including means for limiting the length of reciprocatory movement of the needle thereby to provide a uniformity in the length of stroke of the needle during its relooping operation.

6. In a machine for repairing runs in knitted fabrics, the combination of a handle, a latch needle mounted for reciprocatory movement in the handle and arranged to pull a thread through a loop to make a second loop and so on, power transmitting mechanism operatively connected to the needle to cause it to function, said mechanism including a friction clutch organized to permit an automatic release of the power acting on the needle when a given resistance is met.

7. In a machine for relooping the dropped stitches forming a run in a knitted fabric, the combination of a handle, a latch needle mounted for reciprocatory movement in the handle and adapted to reform the dropped loops forming the run when reciprocated through the fabric as the run and needle are advanced relative to each other along the length of the run, power means, a driving connection between the power means and the needle to cause the needle to function mechanically, said driving connection including slip clutching means for automatically dis-

connecting the needle from the power means permitting the power means to run idly for the time being while the needle is restrained by resistance to its functional reciprocatory movements.

8. A hand held tool for relooping the runs in a knitted fabric comprising a sleeve constituting a handle, a looping needle mounted for reciprocatory movement in the handle and means for reciprocating the needle.

9. In a machine for repairing runs in hosiery or other knitted materials, the combination of a needle arranged to pull a thread through a loop to make a second loop, and so on, a handle provided with a rod reciprocating therethrough and terminating in a clutch for carrying said needle, a means for converting rotary motion into rectilinear motion, a flexible wire connecting such rod with such motion converting means, and a friction rotary drive for such motion converting means arranged to slip when a given resistance is met with either at the work or by finger control of the clutch.

10. In a device for relooping the runs in a knitted fabric, the combination of a source of energy, a power transmitting means leading therefrom, a tool chuck at the other end of said means, a looping needle having a movable thread actuated latch detachably positioned in the chuck, said power transmitting means including mechanism for reciprocating the chuck and the needle and also including flexible means for permitting a freedom of movement of the needle, and means through which the needle reciprocates for holding it manually in operative position as it advances along the run to be relooped.

11. In apparatus for relooping dropped loops forming a run in a knitted fabric, the combination with relatively stationary means for supporting the fabric to expose the run, of a bodily movable reciprocating hook needle held by the hand in operative position relative to the support and the run, said needle having a movable thread actuated latch for opening and closing the hook, and power means operatively connected to reciprocate the needle and cause the same successively to reloop the cross threads as the needle advances along the run relatively to the support.

12. In apparatus for relooping dropped loops forming a run in a knitted fabric, the combination with relatively stationary means for supporting the fabric to expose the run, of a bodily movable reciprocating hook needle held by the hand in operative position relative to the support and the run, said needle having a sliding thread actuated latch for opening and closing the hook, and power means operatively connected to reciprocate the needle and cause it successively to reloop the cross threads as the needle advances along the run relatively to the support.

13. In apparatus for relooping dropped loops forming a run in a knitted fabric, the combination with relatively stationary means for supporting the fabric to expose the run, of a bodily movable reciprocating hook needle held by the hand in operative position relative to the support and the run, said needle having a movable thread actuated latch for opening and closing the hook, and power mechanism operatively connected to reciprocate the needle and successively reloop the cross threads as the needle advances along the run relatively to the support, said mechanism including means for automatically stopping the needle upon a predetermined resistance to the reciprocatory movement of the needle.

14. In apparatus for relooping dropped loops forming a run in a knitted fabric, the combination with relatively stationary means for supporting the fabric to expose the run, of a bodily movable reciprocating hook needle held by the hand in operative position relative to the support and the run, said needle having a sliding thread actuated latch for opening and closing the hook, and power mechanism operatively connected to reciprocate the needle and successively cause the same to reloop the cross threads as the needle advances along the run relatively to the support, said mechanism including means for automatically stopping the needle upon a predetermined resistance to the action of the needle and independently of the continuity of the action of the driving mechanism.

15. In apparatus for relooping dropped loops forming a run in a knitted fabric, the combination with relatively stationary means for supporting the fabric to expose the run, of a bodily movable reciprocating hook needle held by the hand in operative position relative to the support and the run, said needle having a movable thread actuated latch for opening and closing the hook, and power mechanism operatively connected to reciprocate the needle and cause the same successively to reloop the cross threads as the needle advances along the run relatively to the support, said mechanism including a slip device for automatically stopping the needle upon a predetermined resistance to the action of the needle and independently of the continuity of the driving mechanism.

16. In apparatus for relooping dropped loops forming a run in a knitted fabric, the combination with relatively stationary means for supporting the fabric to expose the run, of a bodily movable reciprocating hook needle held by the hand in operative position relative to the support and the run, said needle having a sliding thread actuated latch for opening and closing the hook, and power mechanism operatively connected to reciprocate the needle and successively cause the

same to reloop the cross threads as the needle advances along the run relatively to the support, said mechanism including a slip device for automatically stopping the needle upon a predetermined resistance to the needle and independently of the driving means.

17. In a device for relooping the runs in a knitted fabric, the combination of a source of energy, a power transmitting means leading therefrom, a tool chuck at the other end of said means, a looping needle having a movable thread actuated latch detachably positioned in the chuck, said power transmitting means including mechanism for reciprocating the chuck and the needle, flexible means for permitting a freedom of movement of the needle, means through which the needle reciprocates for holding it manually in operative position as it advances along the run to be relooped, and means for automatically stopping the needle upon a predetermined resistance to the action of the needle independently of the continuity of action of the driving mechanism.

18. A hosiery repair machine, including a source of motive power, a flexible shaft, means for transmitting motion from said source of motive power to said flexible shaft, and a hosiery repair needle operated by said shaft.

19. In a hosiery repair machine, a motor, a shaft rotated thereby, a flexible shaft associated with said motor, means to convert the rotary motion of the first-mentioned shaft into reciprocating motion of said flexible shaft, and a repair needle actuated by said flexible shaft.

20. A hosiery repair machine, including a motor unit, a shaft operated thereby, a worm on said shaft, a friction drive operated by said worm, a crank operated by said friction drive, a shaft actuated by said crank, and a repair needle connected to said shaft.

21. In a hosiery repair machine, a source of motive power, a repair needle, and a flexible and inextensible shaft connecting the needle to the source of motive power.

22. In a hosiery repair machine, a source of motive power, a repair needle operated thereby, a flexible and inextensible shaft connecting the needle to the source of motive power, and means associated with the needle to render the source of motive power inoperative.

23. In a hosiery repair machine, a source of motive power, a repair needle operated thereby, a flexible and inextensible shaft connecting the needle to the source of motive power, and arbitrarily actuated means associated with the needle for rendering the source of motive power inoperative.

Signed at New York, in the county of New York and State of New York, this 17th day of August, A. D. 1928.

WILLIAM DEADERICK VAN DYKE.

1004

PLAINTIFF'S EXHIBIT No. 43

1926-1927

Instruction Book

FOR THE

Gearhart Knitting Machine

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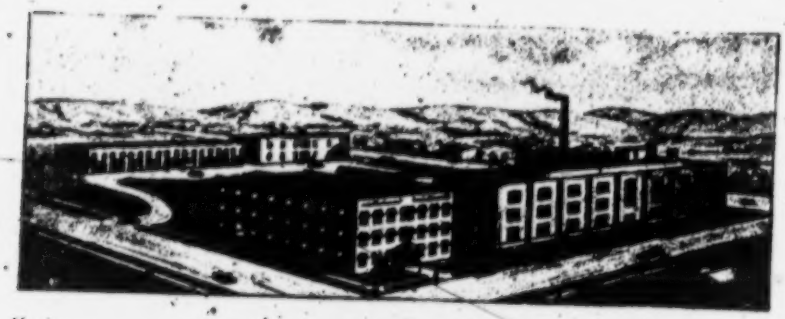
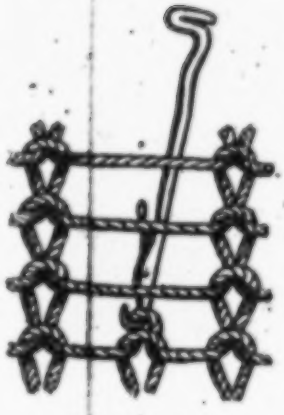


OFFICE AND FACTORY OF CLEARFIELD KNITTING MACHINE CO.

CLEARFIELD, PENNSYLVANIA

1002

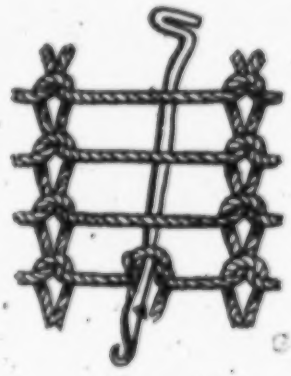
Picking Up a Dropped Cylinder Stitch While Knitting is on the Machine



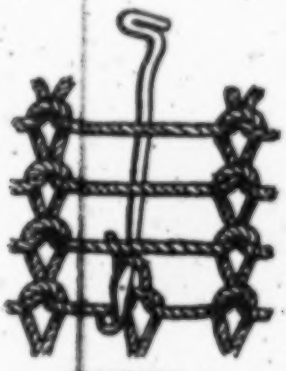
PICTURE 1

Place **Cylinder Needle** down between the knitting and the **cylinder** under all of the dropped stitches. Insert the hook of the needle through the loop of the last stitch which is completely formed. (See Picture 1.)

Push **needle** down until the hooked **loop** slides back and drops off the **needle latch** to the position shown in **Picture 2.**



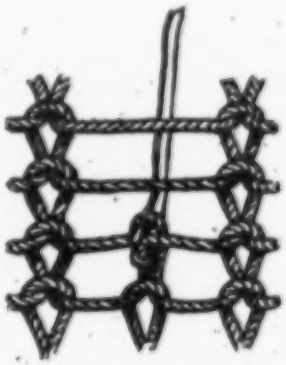
PICTURE 2



PICTURE 3

Turn **needle** on its side and pull back up guiding the **needle** so the latch goes under the cross-thread above as illustrated in **Picture 3.**

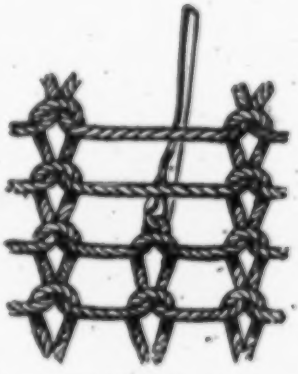
Turn **needle** upright, keeping the **latch** under the one cross-thread. **PULL UPWARDS.** This action will cause the **latch** to force the cross-thread into the **hook** of the **needle.** The old loop will then slide down over and off the **needle** to form a new **stitch as Pictures 4 and 5** illustrate.



PICTURE 4

Push the **needle** down again so the newly formed stitch slides back over and off the needle **latch** as shown in **Picture 2.** Repeat these actions until all the cross-threads have been picked up, then place this last loop up over the **cylinder needle** which dropped it.

Dropped ribber needle stitches discovered after the ribber has been removed from the machine can not be picked up in the same manner as cylinder needle stitches. Instead of placing the needle under the cross-threads, it is placed inside the knitting with the hook catching the last loop. Then proceed to pick up the cross-threads and form stitches with the needle hook and latch, pushing the needle down through the knitting each time.



PICTURE 5

PLAINTIFF'S EXHIBIT 1103 No. 44

KNITTING MANUAL

of

INSTRUCTION & SALES

First Edition

Compiled by

CLEARFIELD KNITTING MACHINE CO.

CLEARFIELD, PA. • • U. S. A.

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Explanation of Knitting Terms.

In the Knitting Trade there are cerain terms used and constantly referred to— the same as there are in other lines of trade; such as sewing, weaving, etc.

Among the principal terms you should familiarize yourself with are the following:

LOOSE TENSION:— The Machine Cam is forced down by screwing Cam Nut to the right or clock-wise to make a long, loose stitch when knitting.

STANDARD TENSION:— The tension is "Standard" when the Machine Cam is in a position so the stitches will not rise with the needles as the needles rise in knitting forward, when all 3 weights are hung to the knitting underneath the Cylinder.

TIGHT TENSION:— Any tension with the Machine Cam in such a position that the knitting has to be held down in addition to the weights to prevent the stitches from rising with the needles in knitting is "Tight" tension.

SET-UP YARN:— Stitches have to be started on the empty needles, which is usually done by using the **SET-UP** as instructed in the regular Instruction Book.

RUN THE KNITTING OFF:— The yarn is broken off at the Carrier and the Crank turned forward causing the needles to cast their stitches off.

CASTING OFF STITCHES:— This means that the stitch or loop is removed from the needle, and not transferred to another but allowed to drop.

TRANSFERRING STITCHES:— When a loop or stitch around a needle is shifted from one needle to another needle, it is "Transferred".

DIVIDING A STITCH:— To divide a stitch or loop it is shared between two needles.

RUNNER STITCH:— When a stitch is cast off a needle, this stitch or loop will unloosen and pull out from the next adjoining loop previously made by the same needle.

RUNNER RE-KNIT:— When a runner is caused accidently, a regular single Cylinder needle is held in the fingers and used to re-knit or re-loop the yarn.

KNIT SELVEDGE:— A selvedge made on the Machine through the action of the Ribber needles being placed in action, out of action, and in action again with the Tappet Lever Switch on the Ribbing Attachment, is a "Knit Selvedge".

SET-UP LOOP SELVEDGE:— This is a "natural" selvedge formed by the short, tight **SET-UP** loops made when the Machine was set up to start knitting.

LOOPED SELVEDGE:— This is a selvedge made by long **SET-UP** loops being hooked, one through the other, with a Cylinder needle held in the fingers.

2 and 1 RIBBED SELVEDGE:— Where, alternately, 2 or more Cylinder needles to 1 Ribber needle is knitting, one of the Cylinder needles in the groups of 2 or more around the Cylinder are raised while knitting the 2 or more rounds with the Tappet Switch placed to "Selvedge" position.

KNITTED HEM FOR SELVEDGE:— A few rounds for a short strip of knitting is made,—the **SET-UP** removed, and this knitting done is doubled up inside of Cylinder, and the Set-Up loops are placed over the needles clear around the Cylinder.

SPLICING YARN IN KNITTING:— The regular yarn being used is broken in two between the Yarn Guide and the Carrier, and the end coming from the Yarn Guide is threaded through the Carrier into a needle **HOOK**. When Crank is turned forward, the needles will start knitting this yarn in addition to the yarn still threaded in the Carrier Hole.

FLAT WEB KNITTING:— This is knitting produced by knitting forwards and backwards on a selected number of Cylinder needles in action, with the balance of Cylinder needles pulled up out of action.

TUBULAR KNITTING:— Knitting that is done when the Crank is turned forward, and the Carrier circles clear around the Cylinder, results in "Tubular Knitting".

EDGING:— This is when the edge of a narrow piece of knitting is seamed or attached to the edge of another piece, for Trimming.

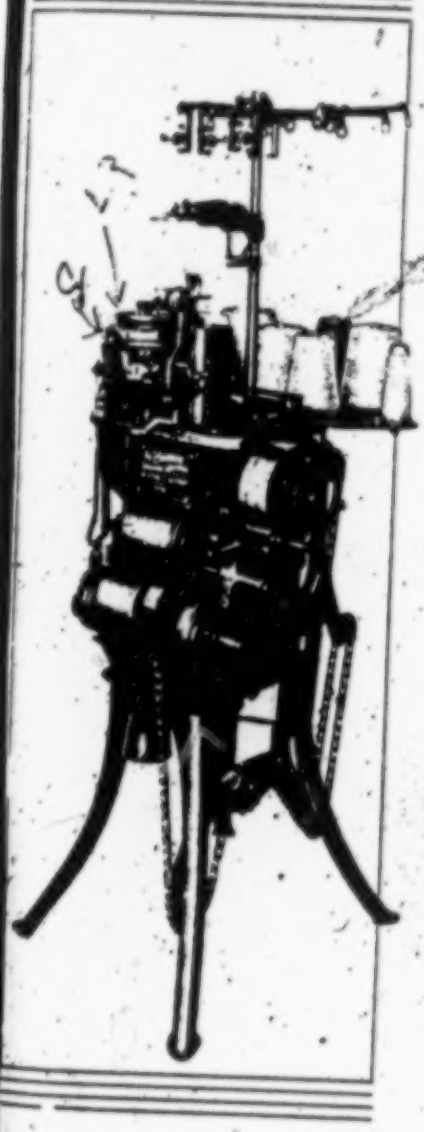
FACING:— Facing is the process of attaching or seaming a narrow strip of knitting on top of a portion of the edge of other "knitting" resulting in the edge of the "Facing Strip" extending slightly over the edge of the "Knitting".

KNITTED BINDING:— A narrow strip of flat web is folded over, sideways, so the two edges match, then the edge of the Knitted Fabric, to be joined, is inserted between these two folded edges or "Binding Strip", and the three edges stitched through, together.

BINDING WITH NEEDLE AND YARN:— A regular sewing needle is used, inserting the needle each time on the same side of the edge of Knitted Fabric to be bound, overlapping the yarn around the edge of Fabric each time. (When the needle is inserted through the Fabric, cast the yarn up over the left hand,—which makes a loop when the needle is inserted the next time, and drawn through; this is like making a button hole stitch).

SEAMED EDGES BY HAND:— Make a button hole stitch as in "Binding with Needle and Yarn". Always draw the yarn or thread up tightly.

DEFENDANT'S EXHIBIT A 1



MORE PROFIT ON THESE SUMMER STYLES WITH THE

BANNER

300—320—340 NEEDLE

NIB-JACK MACHINE

Lower operating costs are as sure a way to profits as are "mark-ups." This Banner Nib Jack Machine (300, 320 or 340 needles) for Ladies' "Spiral Knit" hosiery, knits the greatest volume for a given investment, at the lowest cost per dozen.

A Hemphill representative can prove to you, at your own desk, the larger profit to be had from this versatile Banner Automatic Machine . . . a fast producer . . . for day and night operation . . . with several distinctive Banner features. A letter from you will bring the full story.

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1096
DEFENDANT'S EXHIBIT A-9

Full-Fashioned Hosiery Trends

By George W. Taylor

ANALYTICAL STUDY of types and quantities of machines purchased by American full-fashioned hosiery industry in recent years has been made by Wharton School of Finance and Commerce of the University of Pennsylvania. From this study Dr. George W. Taylor of the Industrial Research Department has drawn interesting conclusions.

RAPID expansion and quickly developing trends have characterized the full-fashioned hosiery industry in the United States during the past ten years. From 1919 to 1929, yearly production of fashioned hosiery increased from six to nearly twenty-seven million dozen pairs—an increase of almost 350%. Moreover, the nature of the stockings demanded by the consumer changed completely. In 1919, 46½% of the production was made of cotton; in 1927, fashioned cotton hosiery was less than 2% of the total. From a relatively obscure position, all-silk hosiery and silk hosiery with cotton tops now accounts for about 90% of the full-fashioned hosiery production. With the use of silk came the vogue of sheerness, and "gauge" became a much-discussed factor.

In order to understand the import of these trends, it is imperative that we investigate the increasing equipment of the industry, from both a quantitative and a qualitative point of view. Domestic manufacturers and the importers of full-fashioned hosiery knitting machines have, without exception, co-operated in this study by supplying data on the number and nature of the machines placed by them in the industry.

More Machines Produced in 1929

It is important to note that more of these machines were produced and imported during 1929 than in any previous year, the total for the past year being 2,624. This number was just about 1,000 more than the 1928 production. That a more complete appreciation of machinery construction may be had, we list in Table I the yearly production and importation of full-fashioned knitting machines since 1920, the first post-war year in which importations occurred.

It will be noted that after a substantial increase in equipment in 1922, when the use of silk hosiery was becoming more general, the two subsequent years showed a rather slow development. And from all evidence, 1923 and 1924 were rather dull years for the industry. About the middle of 1925, short skirts and a consequent demand for sheer hosiery and for lighter colors gave the industry the impetus that has led to its spectacular increase in production. Of course, the 1925 demand for hosiery led to increased orders for machinery that were not filled until 1926, in which year production of knitting machines increased greatly over previous years. The period included in 1927 and 1928 was characterized by substantial but not alarming increments to the industry's equipment, but the 1928 and 1929 influx of new mills and numerous expansion programs of older mills led to an unprecedented production of machines in 1929. From records of practically all machinery companies, we have estimated a total production of 12,565 knitting machine

Table I

Yearly Production and Importation of Full-Fashioned Machines in United States 1920-29 (Inclusive)

1920	993
1921	789
1922	1,032
1923	678
1924	471
1925	1,139
1926	2,134
1927	1,731
1928	1,630
1929	2,624

"Comfort" Sept. 1895. (page 9)

Smith, Milwaukee, Wis.

GEARHART'S FAMILY KNITTER.

OLD WAY.

Boy—Grandma, I wish you would hurry.

Grandma—Yes, dear, I am doing my best.

GEARHART'S WAY.

Boy—Ma, who are these stockings for?

Ma—For the little boy whose ma does not have Gearhart's H. S. Knitter.

Gearhart's Family Knitter knits a stocking heel and toe in ten minutes. Knits all sized stockings and other articles from any kind of yarn. Practical, Strong, Simple, Rapid. Satisfaction guaranteed. Agents wanted. Price very low. Circular and sample work free. J. E. Gearhart, Box 4, Clearfield, Pa.

"Women's Home Companion" Oct. 1897. (page 28)

BLUINE CO., Box K, Concord Junction, Mass.

GEARHART'S FAMILY KNITTER

PRICE REDUCED TO ONLY $7.50.

Has an established reputation as a **RAPID SEAMLESS KNITTER.** Knits everything required in the household from homespun or factory, wool or cotton yarns. The original and only reliable low priced knitting machine. A model of simplicity. **A Child Can Operate It.** Over 20,000 in use. Satisfaction guaranteed. **To Secure Agents,** and a more extended sale, if you send me **$2.00** I will ship the machine by express C. O. D. You can pay the balance **($5.50)** on receipt of machine. Don't miss this unparalled offer, as a standard machine has never before been sold at this low price. Address,

GEARHART MACHINE CO., BOX 6, CLEARFIELD, PA.

News from a Gearhart Home Earner

I wish to let you know how much pleasure the machine I bought from you has brought me.

I have only a few hours a day and sometimes not that, for I am living on a forty-five acre farm. We have a lot of stock and my husband and myself are doing all the work.

But in spite of all my other work, I have been very successful with my knitter. I average about $30.00 all the year 'round per week and can easily make at least one to one and a half dozen pairs a day.

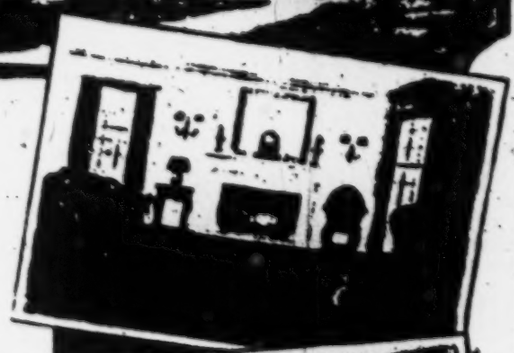
I like Gearhart yarns best of all but sometimes must use yarns my customers bring me. But I use theirs only in extreme cases.

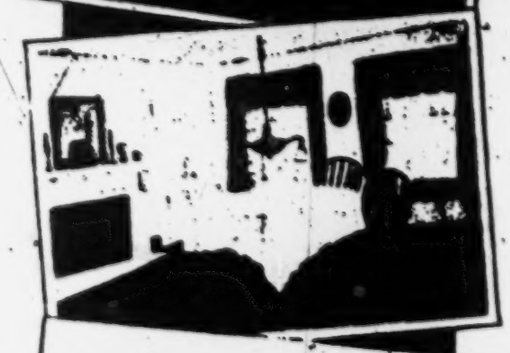
I have sold three knitters to my friends and they are very well pleased with them.

I have made over $900 clear since I have gotten my machine, and we are using the money for improvements for our house.

It took me about two days to learn to understand my machine. I want everyone to know about your machine.

Yours truly,
(Mrs. Charles L. Bird





New—The Sure Way to Earn Money

The Gearhart Money-Back Guarantee

AGAIN the Gearhart Knitting Machine Company proves its leadership—proves its confidence in the supremacy and simplicity of the Gearhart Hand Knitter, by guaranteeing it on a money-back basis.

For thirty-five years the great Gearhart Company has stood far out in front of all others—the pioneer, as solid and sturdy as the honest, stout-hearted pioneers who have made our country the greatest in the world. The Gearhart Company couldn't afford to make this money-back guarantee unless it were absolutely sure that the Gearhart Hand Knitter will be as easy for you to learn to operate as it was for Mrs. Bird (see her letter above). Mrs. Bird earned $800 with it—in her spare time. And she is only one of many women (and men, too) who are turning their spare time into welcome cash.

Gearhart Pay Checks Buy Those Things You Want So Much

$800 in Gearhart checks paid for a veritable host of things in Mrs. Bird's home. Surprising how much $800 will buy! Isn't there something you want? Mrs. Bird wanted something. She discovered the simple way of making the money to get it with—the Gearhart way. Perhaps you and your husband need some new much needed improvements in your home.

All over the country women like yourself are looking about for means of earning some extra money for the comforts and luxuries that make life worth living—for perhaps new, fashionable apparel; for added articles of beauty and usefulness to make home more homelike; or for a ready-at-hand fund to buy timely bargains with.

The Big, New Gearhart Plan Will Pay Even Bigger Earnings

This new plan will enable you to make even more money than Mrs. Bird.

First, Gearhart pays more money for knitting hose—more than ever before.

Next, the new and improved Gearhart Standard ALLWEAR Outfit enables you, under this new plan, to make all classes of knit-wear.

Finally, there is the Gearhart Company's still more liberal supply of knitting yarn, which gives you all the material you need to knit with, a high-grade, long-staple worsted yarn of virgin wool.

Gearhart Capitalizes Your Business in Standard Knitting Yarn

As soon as you begin knitting standard Allwear Hosiery, we will arrange to send you, at no cost to yourself, enough standard yarn for you to keep on knitting continuously. It requires a large amount of yarn to meet the knitting needs of your home industry; so we send you at least $10 worth of yarn—more if found necessary—all our expense.

You can knit and send to the factory a substantial quantity of hosiery from about one half to three-quarters of the yarn we send you. Meanwhile you retain enough to keep right on knitting. On receipt of your shipment of standard hose, we will at once forward to you, with your pay check, the corresponding quantity of replacement yarn which will reach you by or before the time you finish knitting the yarn retained on hand. At no time will you have to pay a dollar for yarn to knit for Gearhart.

The Gearhart Home Knitter, A Permanent, Profitable Investment

When you secure the Gearhart Knitting Machine from the Company, you have in mind the things you want it to earn for you. Have you in mind some thing or things costing, say, $100, $200, or $300? How easy it is to get what you want—in the light of Mrs. Bird's experience! She made $800—in her spare time. And then—think of this:—at the end of your first year—after you have earned the money you have set out to get, and much more—you still have the knitting machine and its earning power.

A Very Little Makes You Owner of a Gearhart Knitting Machine

Having received your Gearhart Knitter, you begin practically at once to increase your own and your family's income by knitting Allwear Hosiery, paid for by Gearhart at a liberal rate. Mrs. Bird states it took her two days—only a very little time each day—to master her Gearhart Knitter. It should take you less time, with the new and improved machine. Remember, other women are making the extra money they want by knitting their spare time into dollars on the Gearhart Knitter. So can you.

The Gearhart Money-Back Guarantee Is Your Iron-Clad Protection

The Gearhart Machine comes to you already set up with a standard sock partly knitted but left in the machine ready for you to go on with the knitting, by following the simply-written, illustrated instructions which Mrs. Bird found so easy to follow to complete success. This feature is not found in any other home-work proposition, and makes it much easier to master the operation of the Gearhart Knitter.

In fact, we guarantee to teach you to operate the Gearhart Hand Knitter successfully—guarantee that you will be enabled to master the machine or you may have your money back in cash. You are fully protected by this iron-clad guarantee.

Fill Out And Mail This Coupon Today

Do this to yourself. You want to make extra money. Here is a plan of earning the cash you want in an easy, pleasant, private way, in regular Gearhart Pay Checks. Fill out the coupon and we will send you, free, and without obligation on your part, our "Guide Book" to home earnings (which tells all about the Gearhart Plan) together with actual samples of knitting done by the Gearhart Hand Knitter.

GEARHART KNITTING MACHINE COMPANY
1213 West 4th Street • • • • CLEARFIELD, PA.

Mail This Coupon Today

Gearhart Knitting Machine Co.,
1213 West 4th St., Clearfield, Pa.

Please send me without charge or obligation your Guide Book to Home Earnings, samples of knitting and particulars about the Gearhart Plan for Home Earners.

Name .....

Address .....

"McCall's" Dec. 1923. (page 91)
1008
DEC. A-19 (3)

News from a Gearhart Home Earner

I wish to let you know how much pleasure the machine I bought from you, has brought me.

I have only a few hours a day and sometimes not that, for I am living on a forty-five acre farm. We have a lot of stock and my husband and myself are doing all the work.

But in spite of all my other work, I have been very successful with my knitter, I average about $30.00 all the year 'round for work and can easily make at least one to one and a half dozen pairs a day.

I like Gearhart yarns best of all but sometimes must use yarns my customers bring me. But I use theirs only in extreme cases.

I have sold these knitters to my friends and they are very well pleased with them.

I have made over $900 clear since I have gotten my machine, and we are using the money for improvements for our home.

It took me about two days to learn to understand my machine. I want everyone to know about your machine.

Yours truly,
(Mrs. CHARLES L. BIRD

New—The Sure Way to Earn Money

The Gearhart Money-Back Guarantee

AGAIN the Gearhart Knitting Machine Company proves its leadership—proves its confidence in the supremacy and simplicity of the Gearhart Hand Knitter, by guaranteeing it on a money-back basis.

For thirty-five years the great Gearhart Company has stood far out in front of all others—the pioneer, as solid and sturdy as the honest, stout-hearted pioneers who have made our country the greatest in the world. The Gearhart Company couldn't afford to make this money-back guarantee unless it were absolutely sure that the Gearhart Hand Knitter will be as easy for you to learn to operate as it was for Mrs. Bird (see her letter above). Mrs. Bird earned $800 with it—in her spare time. And she is only one of many women (and men, too) who are turning their spare time into welcome cash.

Gearhart Pay Checks Buy Those Things You Want So Much

Some in Gearhart checks paid for a veritable host of things in Mrs. Bird's home. Surprising how much $800 will buy! Isn't there something you want? Mrs. Bird wanted something. She discovered the simple way of making the money to get it with—the Gearhart way. Perhaps you and your husband need some new much needed improvements in your home.

All over the country women like yourself are looking about for means of earning some extra money for the comforts and luxuries that make life worth living—for perhaps new, fashionable apparel; for added articles of beauty and usefulness to make home more homelike; or for a ready-at-hand fund to buy timely bargains with.

The Big, New Gearhart Plan Will Pay Even Bigger Earnings

This new plan will enable you to make even more money than Mrs. Bird.

First, Gearhart pays more money for knitting hose—more than ever before.

Next, the new and improved Gearhart Standard ALLWEAR Outfit enables you, under this new plan, to make all classes of knit-wear.

Finally, there is the Gearhart Company's still more liberal supply of knitting yarn which gives you all the material you need to knit with, a high-grade, long-staple worsted yarn of virgin wool.

Gearhart Capitalizes Your Business In Standard Knitting Yarn

As soon as you begin knitting standard Allwear Hosiery, we will arrange to send you, at no cost to yourself, enough standard yarn for you to keep on knitting continuously. If requires a large amount of yarn to meet the knitting needs of your home industry; so we send you at least $50 worth of yarn—more if found necessary—at our expense.

You can knit and send to the factory a substantial quantity of hosiery from about one half to three-quarters of the yarn we send you. Meanwhile you retain enough to keep right on knitting. On receipt of your shipment of standard hose, we will at once forward to you, with your pay check, the corresponding quantity of replacement yarn which will reach you by or before the time you finish knitting the yarn retained on hand. At no time will you have to pay a dollar for yarn to knit for Gearhart.

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Name .....

Address .....

.....

GEARHART KNITTING MACHINE COMPANY
1228 West 4th Street • • • • • • • CLEARFIELD, PA.

"Women's Home Companion" Dec. 1923. (page 123) 1109 DEC. A-19 (4)

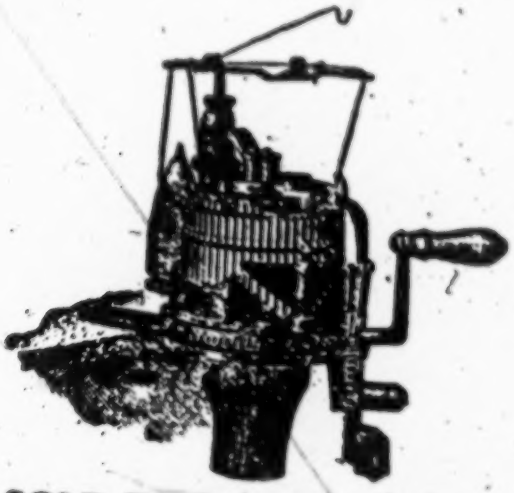
1010

DEFENDANT'S EXHIBIT A 30

Instructions for Operating

THE CELEBRATED AUTO KNITTER

MODEL B



SOLD IN ALL COUNTRIES

NEW EDITION ENTIRELY RE-WRITTEN

Price by Mail . . . . 2s— 50 Cents.

AUTO-KNITTER HOSIERY CO.

BUFFALO, U. S. A. LEICESTER, England. TORONTO, Canada.

W20

30. MENDING BROKEN OR SLIPPED STITCHES. This is done with one of the Machine needles, while the knitting is on the Machine or off. The needle is used as a crochet needle by hooking it in the dropped stitch and pushing it far enough through to bring the stitch below the latch; then draw it back, catching the next cross-thread above, in the hook of the needle you are using; pull your needle out of the loop now, which will cause the new stitch to be formed just like the needle in the Cylinder makes the stitch. Proceed in this way until all the dropped stitches are picked up again, which were raveled down, and slip the last stitch made, over the Cylinder needle. If the mending is done out of the Machine, you tie the broken stitch with a short piece of yarn and the ends drawn inside the web with a loose Cylinder needle and tied again. You should always be careful to pick up broken or slipped stitches, as soon as made.

31. REVERSING THE MACHINE. When reversing the Machine with the work on, always lift at least 20 needles out of action, and turn the Machine until the Cam is directly under the raised needles and both latches clear, then reverse but of course, if you want to continue to knit, you must push these needles, raised, down in action again. Always see that the latch on the side in the direction you are turning, gets under and lifts up the first needle, or you may jam the Cylinder groove. This is IMPORTANT.

To reverse with an empty Machine, there are only two points to observe: Get the point of the latch, which is ahead, in the direction you wish to turn, under the needles by lifting the first two or three slightly, and lift up or lower the two or three needles ahead of the heel of the other latch, that it will not strike them. Do this operation slow and watch what you are doing and you will not have trouble.

32. TO KNIT FLAT WEB. By this is meant knitted work which is flat instead of tubular when it comes from the Machine. It can be most conveniently done when there are at least ONE THIRD of the needles removed from the Cylinder, and knitting backward and forward with the yarn over the TAKE-UP SPRING (N) just as in making the heels and toes. If desired, it can be done with all the needles in the Cylinder, and makes a larger web, as follows.

(a) WITH ALL NEEDLES IN USE. Set up the Machine as instructed, but do not knit a full round—stop with the Carrier nearly in front of the Machine,—lift up out of action the first 24 needles ahead of the Carrier, (after you have threaded up on them), and

1012

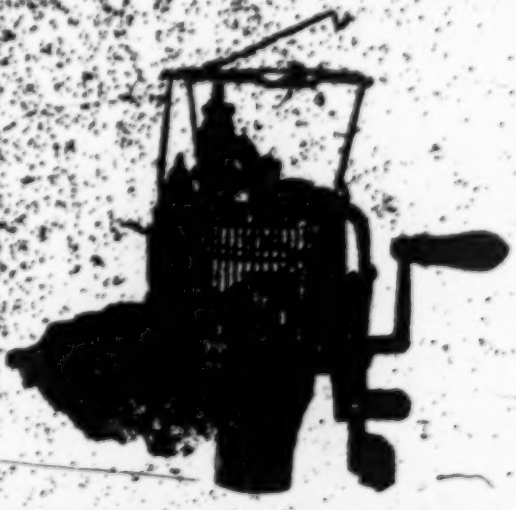
DEFENDANT'S EXHIBIT A 31

Instructions for Operating

GEARHART'S KNITTING MACHINE

Special Work and Family Outfit

AND ALL STANDARD MACHINES



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CLEARFIELD, PA., U. S. A.

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Important Points to be Observed

(a) Always read through Carefully, the Instruction as given under each head, before attempting to do the work the heading implies.

(b) Be sure the yarn you are using is not too heavy for the cylinder and needles you are using it on:

(c) In practicing any new stitch or new part, always knit with a loose stitch and the cam low.

(d) At all times see that the Needle Latches are all down that the Needle Hook will easily grasp the yarn as it leaves the Carrier. The Carrier is adjustable so that it can be made to lead the yarn to the hooks correctly. See that this is done.

(e) No needle will make a correct stitch if the work on the Machine is not held down close to the top of the cylinder.

(f) Always remember that in knitting forward the needles must run up over the right latch and out under the left latch. In backward, run up over the left latch and out under the right.

(g) Oil the Ribber and the Machine frequently and take care that the needles do not become rusted.

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The Auto Knitter Instruction Book

Sixteenth Edition

AUTO KNITTER HOSIERY CO.

TORONTO, CAN. BUFFALO, N.Y. LEICESTER, ENG.

HOW TO USE THIS BOOK

This instruction book has been written as though the reader had never seen a knitting machine, knows nothing about knitting of any kind, and understands very little about mechanical things. By photographs and drawings everything is made so clear that almost anyone can readily learn to operate the Auto-Knitter without needless puzzling over technical details.

It is very helpful to know the principal parts of the machine and understand how they work in order to use it intelligently. The index of this book makes it easy for you to instantly refer to any part of the machine or its operation which you do not perfectly understand.

Learn first the names of principal parts, their functions, watch carefully the needle action and get thoroughly acquainted with the machine. This will enable you to become a good operator in a very short time. Do not try to operate the Auto Knitter before reading the instruction book through and studying the fundamental principles of the machine's operation.

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Auto Knitter Hosiery Co., Inc. Auto Knitter Hosiery Co., Ltd.
Auto Knitter Hosiery (Canada) Co., Ltd.
ALL RIGHTS RESERVED

PICK 3

If a stitch s ally, if the
weights are on, he weights
should be taken lows:

Take a spar end first, between the work and the cylinder, with the hook pointing inwards towards the work. Pass the left hand up inside the cylinder from underneath the machine. Take hold of the work and bring the dropped stitch within the reach of the needle hook. Get the stitch onto the hook, being careful not to slip the wool, slide the needle through the stitch until the stitch is behind the latch, then turn the needle a quarter turn to the right, pull it slowly back until the latch stands out almost straight but not quite, the stitch still being behind it. Then work the latch up behind the yarn immediately above the stitch. This done proceed to draw the needle slowly back and the latch will take the yarn inside the hook, allowing the old stitch to slide over and thus forming the new one. Having now a new stitch inside the hook, slide the needle through the work again until the stitch is behind the latch, and repeat the whole operation until you get the stitch to the top, when it must be placed on its cylinder needle.

If the ribber is in use when the stitch slips off the cylinder needle, the ribber needles must first be taken out, as directed on page 36 and the complete ribbing attachment removed.

For first practice, should a stitch have slipped off the needle, it is sufficient to pull up onto the needle any stitch from the nearest part of the knitting, the only object being to get a distinct and separate loop around each needle, so that it will knit properly. One loop must not be taken around two needles. If only a single stitch is off at any point, the cross thread of yarn just behind the needle should be pulled onto it. ("Behind a needle" is "inside the cylinder.")

TO FORM A SELVEDGE FOR RIB WORK

The tappet plate switch cam (H-7) permits the selvedge to be formed in a very simple manner when knitting 1-1 rib.

Have plain work on the machine with all cylinder needles in. Put in your ribber and set the machine for 1-1 rib. Knit a few rounds with ribber and be sure that you have a stitch on every needle. Break yarn, join on cotton to divide work, as explained on page 24, and having knit three or four rows of cotton, stop yarn carrier at front, break cotton, join on yarn and knit exactly one round. Put your ribber needles out of action by moving switch (H-8) to the "out" position and then knit three rounds holding your work well down. Put the ribber needles in action again by moving the switch to the "in" position, and proceed to knit 1-1 rib for the cuff.

In moving switch care must be taken to see that it goes the full distance and rests in either the "in" or "out" groove.

TO KNIT SELVEDGE FOR OTHER THAN 1-1 RIB

Put on selvedge with all cylinder needles in as explained on page 25. Knit one round, put on ribber without needles in dial and regulate ribber for rib required. Put in dial needles and proceed to knit

It may sometimes happen that a needle will be in such a position as to block the movement of the switch. In this case, work the tappet plate slightly forward so as to clear the needle; the switch can then be moved to the desired point.

PICKING UP RIB STITCHES

This is done on the same principle as explained on page 20 except that, of course, it is done from the inside of the work instead of the outside. All of the ribber needles must be taken out of the dial and left hanging to their stitches, outside the cylinder. The complete ribbing attachment can then be removed so as to allow free access to the work.

INSTRUCTIONS FOR OPERATING THE GEARHART SOCK KNITTING MACHINE

PRICE, 50 CENTS

INSTRUCTIONS *for* OPERATING *the* GEARHART SOCK KNITTING MACHINE

By MISS ADA WEINER

Drawings by
MR. FRANZ E. ZERRAHN

Dedicated to the Serbian Distress Fund
9 Boylston Place, Boston

Boston
Printed for the Author
1918

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by
Miss Ada Weiner

If there is no work on the machine, possibly the Needles have fallen too far down in the Cam and stick. Move the Cam gently backward a little and then forward again.

See if the Cam Latches are in their proper positions (first Latch under the Needles, second on top). See Section 8. Lift up the Needle directly in front of the first Latch and push all Needles down as far as they will go near the second Latch.

Stitches drop?

Are tongues open? They should be.
Is Carrier too far from the Needles? See Section 9.
Is Tension correct? Tension is an important factor and must be understood in order to knit successfully. See Section 10. Tension must be regulated to suit the size of yarn.
To Find Correct Tension for yarn, do plain knitting and set tension for a moderately loose stitch. For Ribbing, raise Cam Nut two rounds higher.

Cam off Center?

Fig. V shows position of Screws which center the Ribber Cam. If these screws have become loosened or if Cam is forced out of position, which can be readily seen by paint marks, stitches will drop.

If stitches drop off at Selvedge, Tension is too loose. If stitches do not knit and bands of yarn are visible, Tension is too tight.

If Ribber Dial Pin slips past the Lug, bend it outward. A little solder will strengthen and secure it.

If Wire Band comes off Machine, have it soldered together.
Remove Work and Needles from machine; bring Carrier to front of machine; put one Needle in at right of Carrier; put soldered part of Band over Needle in Band groove; slip Band under Carrier; and with thumb and forefinger of left hand, hold this part of Band in position; with screw driver thrust under Band, stretch over Cylinder.

To pick up Plain Stitch, use Cylinder Needle which will work similar to crochet hook. Push Needle down between Work and Cylinder and catch stitch. Push Needle through stitch until Tongue is free. Draw Needle back allowing Tongue to close over yarn above, which will form stitch. Replace on Needle.

To pick up Ribbed Stitch, catch stitch inside work. Push Needle upward freeing Tongue and catching yarn above at the same time. Draw yarn through stitch. Replace on Needle.

To Splice Yarn. Ends should be knotted. Stop knitting when knot is about an inch above the Carrier. Draw knot through both holes of the Carrier and cut off. Draw end of yarn coming from Needles *Up* through the two holes of the Carrier. This will make the ends overlap about two or three inches. Continue knitting.

1025

J. Hilbert,

Knitting Needles.

No. 6,025. Patented Jan. 9. 1849

Fig. 1.

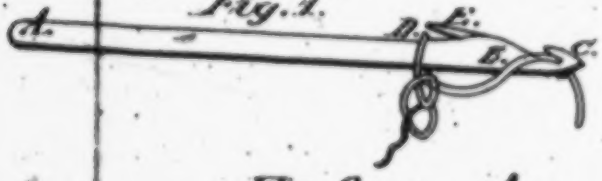


Fig. 2.

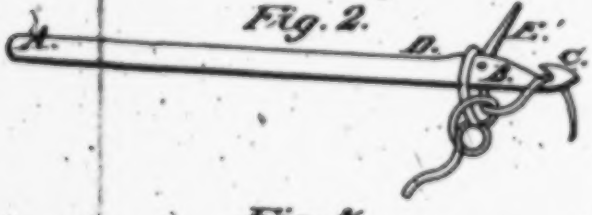


Fig. 3.

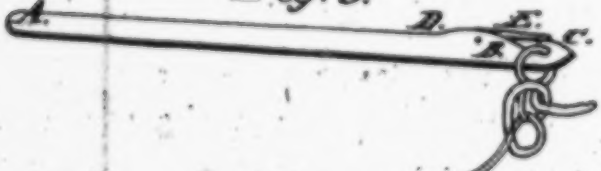


Fig. 4.

UNITED STATES PATENT OFFICE.

JAMES HIBBERT, OF PROVIDENCE, RHODE ISLAND.

KNITTING-NEEDLE.

Specification of Letters Patent No. 6,035, dated January 9, 1849.

To all whom it may concern:

Be it known that I, JAMES HIBBERT, of Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Knitting-Needle; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to accompanying drawings, making a part of this specification, in which—

Figures 1, 2, 3, and 4, exhibit side views of my needle drawn to a scale of the full size, as it appears in the different stages of the formation of the stitch.

My invention consists in the application of a latch or tongue E Fig. 1 in connection with the hook of the needle. Sweeping freely back and forth upon the center pin B Fig. 1 I construct my needle in the general form shown in the drawings, of steel or other suitable material, and of different sizes according to the fineness of the work, the end at A Fig. 1 to be mounted with composition as heretofore applied.

The latch E Fig. 1 is constructed in the general form shown in the drawings of steel or other suitable material, and attached to the needle by a rivet or center pin B on which it freely turns or sweeps back and forth; a longitudinal groove is cut in the edge of the needle from the point B toward A and C Fig. 1 into which the latch falls in either position. The needle thus constructed is designed to work on the knitting frames heretofore in use.

In the operation of my needle the latch sweeps from D to C and from C to D Figs. 1 to 4 in the formation of each stitch by the frame, the force of the yarn thus moving it, each turn throwing a loop off at the end of the needle at C, which completes the stitch with the loop last formed, hanging upon the hook of the needle. For a further illustration of the operation of my needle and of the action of the latch in forming a stitch see Figs. 1, 2, 3, and 4, which plainly show the position of the latch during the different stages of the formation of the stitch.

What I claim as my invention, and desire to secure by Letters Patent, is—

The application of a latch or tongue applied to the hook of the needle and operated as herein described.

March 28, 1848.

JAMES HIBBERT.

Witnesses:

JOHN PRENTICE,
FRANCIS E. HOPPER.

DISCLAIMER.

To the Commissioner of Patents:

The petition of WALTER AIKEN, of Franklin, New Hampshire, respectfully represents that your petitioner is the assignee of certain Letters Patent granted to JAMES HIBBERT, of Providence, Rhode Island, dated Jany. 9, 1849, (and extended for seven years from the 9th day of January, 1863,) for Improvement in Knitting-Needles; that the claim of said patent has been adjudged to be too broad, claiming more than that of which said HIBBERT was the first inventor—to wit: a latch-needle generally.

Your petitioner therefore hereby enters his disclaimer of any construction of latch-needles which has not a curvature or swell (substantially as shown in the drawings annexed to said Letters Patent) or its equivalent, and claims as the invention of the said JAMES HIBBERT the application of a latch or tongue applied to the hoop of the needle and operated as described in said patent, and prays that this disclaimer may be recorded in the United States Patent Office, as provided by law, the same to operate to the extent of your petitioner's interest in said Letters Patent.

Your petitioner has paid ten dollars into the Treasury of the United States in conformity with the requirements of the act of Congress in such case made and provided, and your petitioner further represents that he is the assignee of the entire and exclusive right to said Letters Patent under the extension thereof.

WALTER AIKEN.

Subscribed in presence of—

ASA P. CATE,
WM. T. CASE.

A. C. Carey,

Knitting Mach. Needle.

No 47,488. Patented Apr. 25. 1865.

Fig. 2.

Fig. 4.

Fig. 3.

attest:

John A. Bakewell

Chas. Bakewell Jr.

Inventor:

Augustus C. Carey

10,28

UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, OF LYNN, ASSIGNOR TO HIMSELF AND GEO. S. SULLIVAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 47,488, dated April 25, 1865.

To all whom it may concern:

Be it known that I, AUGUSTUS C. CAREY, of Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Knitting-Needles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

Figure I is a view of the common spring-needle. Fig. II is a view of the common latch-needle. Fig. III is a view of my combination of the spring and latch needle.

The "latch" knitting-needle as now used in machines for manufacturing coarse knit fabrics is in many respects an improvement on the old spring needle, but there are several objections to its use. It is made with a very short, rigid hook, nearly semicircular in form, and having its point not more than one-sixteenth or one-eighth of an inch above the level of the base of the needle. The end of the latch rests upon this point, and when closed the needle is blunt at its base and the latch makes a large angle with the shank at a point near the pivot of the latch. This abrupt change of direction causes the loops or stitches to deliver hard. It is also very difficult to make the stitches even, and if used on fine work the fabric has the appearance of having been knit with needles of various sizes.

The spring needle, as compared with the common latch-needle, has this advantage, that it never changes in size near the end, so that if one needle is open more than another at the end of the hook the yarn in drawing toward the base or bend of the needle becomes equalized and all the loops are of the same size, thus making smooth work, either coarse or fine.

Fig. I shows the form of the common spring-needle with its long, flexible hook, A, and its short bend at the base B, where it joins the shank C.

Fig. II shows the form of the common latch-needle, having a rigid, short hook, D, and a latch, E, turning on a pivot, F, in the shank G.

My improvement and combination of these two needles is represented in Fig. III.

To the shank H the latch I is attached by the pivot J. The elastic hook K is turned short at the base L, and extends upward three-eighths of an inch or more, according to the size of the needle. The end of the hook may be turned slightly outward at the point which rests in a small cavity in the lower end of the latch when the latter is closed. By this combination I thus produce a needle having a base as small as may be desired, an elastic or flexible hook, and a latch so placed that it offers little resistance to the passage of the loops or stitches, the angle of the latch with the shank at J being very small, and this angle is made still less by the yielding of the hook K when the latch I is pressed down upon it.

By my improvement the latch-needle, which has heretofore been used for making coarse work, is adapted for making the very best kinds of knit goods, and produces a fine, even, and firm fabric.

What I claim, and desire to secure by Letters Patent, is—

The combination, in a machine knitting-needle, of a latch with an elongated flexible hook that extends upward nearly parallel with the shank of the needle, and to such a distance or length as to reduce the angle that the latch makes with the shank, thus forming a narrow or slim needle that can be used for fine work, substantially as herein described.

AUGUSTUS C. CAREY.

In presence of—

JOHN M. BATCHELDER,
SAML. BATCHELDER, Jr.

L. W. Fifield.

Knitting Needle.

No. 51,577. Patented Dec. 19, 1865.

Fig: 1.

Fig: 2.

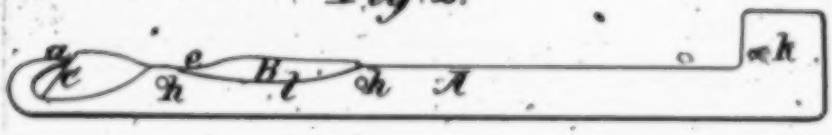


Fig: 3.

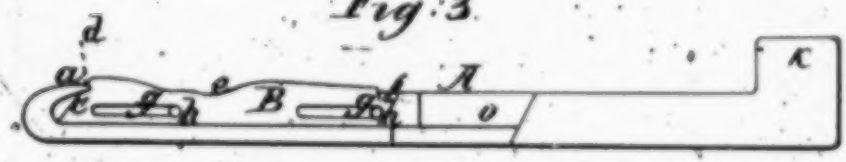


Fig: 4.

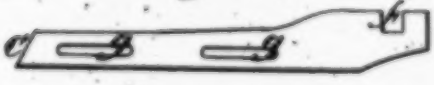
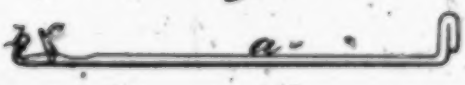


Fig: 5



Witnesses

A. Young Thayer

A. F. Hall Jr

Inventor;

Leo W. Fifield

Per R. H. Eddy Atty

UNITED STATES PATENT OFFICE.

LEVI W. FIFIELD, OF NEW HAMPTON, NEW HAMPSHIRE.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 51,577, dated December 19, 1865.

To all whom it may concern:

Be it known that I, LEVI W. FIFIELD, of New Hampton, in the county of Belknap and State of New Hampshire, have made a new and useful invention having reference to the Needles of Knitting or Hosiery Looms or Machinery; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view of a hooked needle provided with my invention. Fig. 2 is a side elevation, and Fig. 3 a longitudinal section, of it. Fig. 4 is a side view of a needle-slide provided with a back notch and cammed front end, but having no loop-notch. Fig. 5 will be hereinafter explained.

In carrying out my invention I construct the hooked needle with a groove, *a*, arranged longitudinally in its shank A and in rear of its hook *a*, such groove being in the plane of the hook and for reception of a closer or slide, B. The front end of such closer or slide B, I form at an acute angle with the lower edge of the slide, or, in other words, cammed, as shown at *c*; and I also construct in the said front end a recess, *d*, for the reception of and for protecting the point of the hook from being caught in a loop while the latter may be in the act of being drawn along the needle. Furthermore, in the upper part of the closer or slide B, and at a short distance in rear of the front end of such slide, I make what I term a "loop-notch," *e*, such notch being formed as represented in Fig. 3. The slide may also be constructed either with or without a back notch, as seen at *f*, such back notch being for the reception of mechanism for producing or insuring the longitudinal movements of the slide or closer. The said slide or closer is also constructed with one or more slots, *g*, extending through it, to receive pins *h h*, which go through them and the shank of the needle, and serve to retain the slide in its proper connection with the said shank. These slots and pins also answer the purpose of determining the extent of longitudinal movements of the slide relatively to the hook of the needle. The forward movement of the slide should be such as not only to allow the hook to enter the recess *d*, but to prevent the slide from contact with the point of the hook, whereby injury thereto might result.

The shank A is constructed with a notch, *i*, to enable the loop to enter or remain in the notch *e* of the slide while the needle is in the act of being moved longitudinally. The shank A may be provided with the usual projection, *k*, for entering the groove of the slide-operating cam.

The closing-slide or needle-closer B, constructed with the cam *c* and the loop-notch *e*, and combined with the shank of the hooked needle in manner substantially as described, will be operated to excellent advantage by the loops during the advance and retreat of the needle. While the needle is in the act of being retracted the knitted loop is in the notch *e*, and will hold the slide stationary or prevent it from being moved with the needle until the point thereof is brought up into the recess *d* of the slide. The further retraction of the needle will cause the slide and the needle to move backward simultaneously, and the loop to be drawn off the needle and over its hook, and the yarn laid in the hook. Next, on the advance of the needle the new loop formed by such yarn will force or keep the slide back and raise the incline *c* and pass into the notch *e*, ready for effecting the closing of the slide during the next retreat of the needle.

From the above it will be seen how the needle-closer B is operated by the needle and the loops, and that in reality it requires no additional mechanism to effect the movements of such slide relatively to the hook. But in order that there may be no uncertainty as to the movements of the slider, it may be constructed with the back notch *f* or its equivalent, the same being for the purpose hereinbefore explained.

The sliding closer B, made and applied to the hooked needle in manner as described, has many advantages over the ordinary revolving latch closer. In the first place it is not so liable to become broken or injured. It is cheaper of construction, and operates with greater certainty. It is very difficult to make the latches of the right shape and temper, and as they are of necessity very small, they are consequently weak and easily bent or broken, thereby often causing much trouble to the knitter.

The closing-slide, when made and applied to the needle as described, has no part so exposed as to be easily disengaged or broken. The

slide is mostly inclosed within the body of the needle, and is thereby so protected that nothing short of bending or breaking the needle can do injury to the slide. The slide, in comparison to the rotary closer, will effect a large saving to the latter; and, besides, produce better work, the fabric being even and free from holes, on account of there being so little liability of dropping the stitches, and, besides, the amount of work per day produced will be much more than can be effected by the needles when provided with the latches or rotary closers.

The body of the needle may be made from sheet-steel, in which case it will be much more durable than that of the ordinary needle made from wire and provided with a turning-latch, such a needle, in side view, being represented in Fig. 5, in which *a* denotes the shank, *b* the hook, and *c* the turning-latch, of the needle.

I do not claim a hooked needle having its shank grooved for the reception of a closing-slide; nor do I claim such a slide as made with an inclination or cam at its front end, and also with a slot to receive a pin, such slot and pin being arranged so as to simply hold the slide in connection with the shank, without being able to act as a means of arresting the slide so that it may not come in contact with the hook of the needle.

I claim—

1. The combination and arrangement of the notches *e* and *l*, with the closer B, its cam *c*, and the grooved and hooked shank A.

2. The combination and arrangement of one or more slots, *g* and pins *h*, with the hook *a* and the recess *d* of the needle A and its closer B, each slot and its pin in such an arrangement serving not only to hold the slide in connection with the needle-shank, but to stop the slide in its forward or forward and backward movements, as set forth.

LEVI W. FIFIELD.

Witnesses:
A. BURPEE,
F. C. WELLS.

1032

2 Sheets—Sheet 1.

B. ARNOLD.

MACHINE FOR MENDING STOCKINGS.

No. 93,394. Patented Aug. 10, 1869.

Fig. 1.

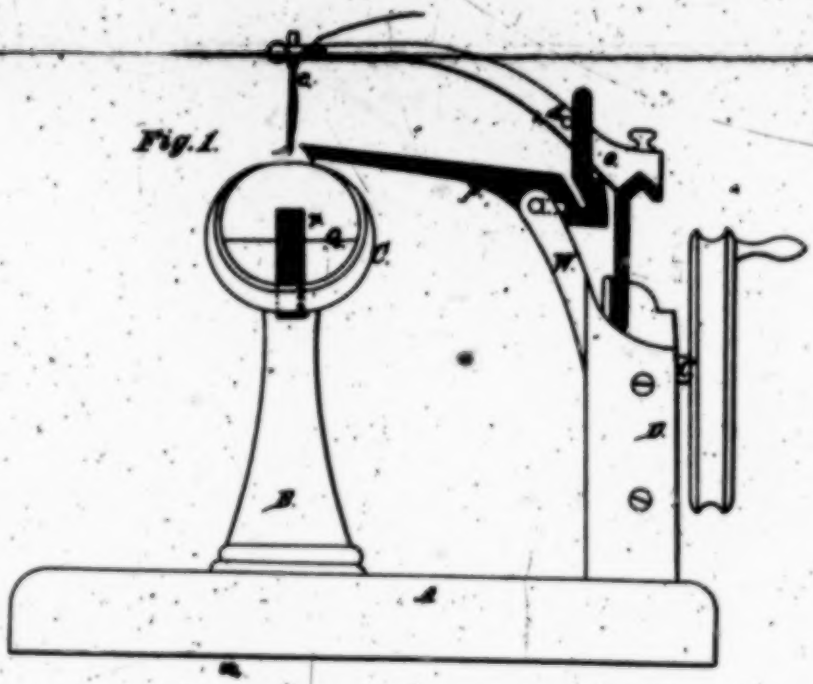
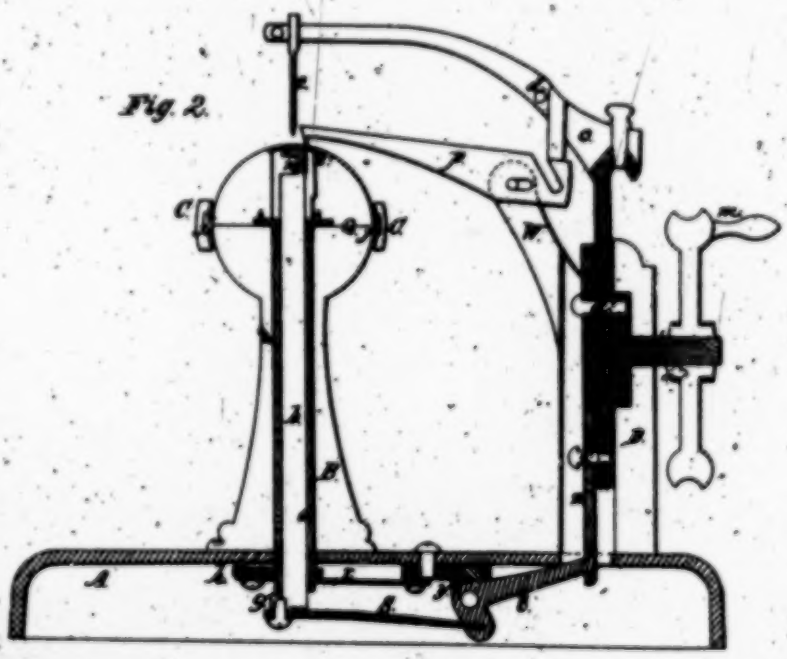


Fig. 2.



Witnesses.

Frank H. Arnold

Horace A. Foster

Inventor.

Benjamin Arnold

3 Sheets—Sheet 2.

B. ARNOLD.

MACHINE FOR MENDING STOCKINGS.

No. 93,394. Patented Aug. 10, 1869.

Fig. 3.

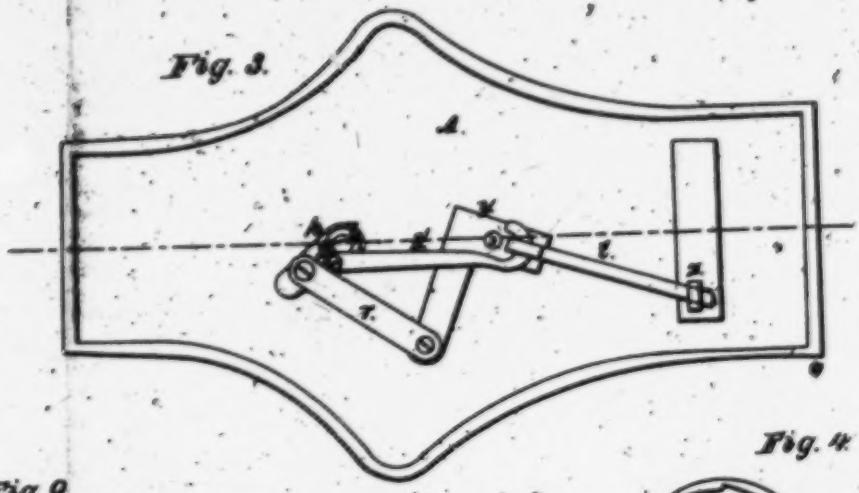


Fig. 4.

Fig. 9.

Fig. 7.

Fig. 5.

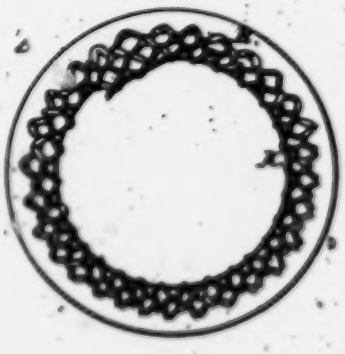


Fig. 8.

Fig. 6.

Witnesses.
Frank H Arnold
Richard A Foster

Inventor
Benjamin Arnold

UNITED STATES PATENT OFFICE.

BENJAMIN ARNOLD, OF EAST GREENWICH, RHODE ISLAND.

IMPROVEMENT IN MACHINES FOR MENDING STOCKINGS.

Specification forming part of Letters Patent No. 93,294, dated August 10, 1869.

To all whom it may concern:

Be it known that I, BENJAMIN ARNOLD, of East Greenwich, in the county of Kent and State of Rhode Island, have invented certain new and useful Improvements in Machines for Mending Stockings and other Fabrics; and I do hereby declare the following to be a full and correct description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters and numbers of reference marked thereon, similar letters and numbers being used in all the figures to denote the same part.

In these drawings, Figure 1 is a side elevation of the machine. Fig. 2 shows a vertical longitudinal section taken in the direction of the red line, Fig. 3. Fig. 3 is a view taken from the under side of the machine. Fig. 4 shows the under side of band C. Fig. 5 shows how the rows of stitches are joined together. Fig. 6 is a top view of the looper. Fig. 8 is a ring for holding the work. Figs. 7 and 9 show other forms of some of the parts.

The nature of my invention consists in mending or filling up a hole in a stocking or other fabric by making a row or successive rows of stitches around the opening, filling the space to the center, and joining these rows together, so as to form a piece of webbing, filling the opening, and attaching to the fabric by the first row of stitches, which are taken in the border or edge of the fabric around the opening.

The construction is as follows: A is a table or platform, to which is secured the standard D, that holds the driving-shaft C'. On the inner end of this shaft is put a crank, *a'*, or its equivalent, which gives motion to a sliding arm, O, which moves up and down in slides on the standard D, and which has its outer end fitted to hold an ordinary sewing-machine needle, *c*, with the eye near the point. Another standard, B, is placed on the platform, under the outer end of the arm O, and holds a spherical block, Q, on its upper end. This block is divided near its middle horizontally, so that the upper half may move on the lower half, a tube, *a*, attached to the upper half, extending down through the standard B, serving to hold it in place and to move it. A rod, *b*, is put in the center of this tube *a*, and has on its upper end a looper to catch the thread or yarn in the needle *c*, and an arm, *g*, is fastened to the lower end of the rod to move it by. Another arm, *h*, is fastened to the lower end of the tube *a*. (See Fig. 3.)

f is a ring attached by two pivots to the lower part of the block, so as to swing freely from a horizontal to a nearly perpendicular position. On the outside of this ring is a band, C, in which an annular recess is made to hold the ring *f*. The band moves around the block and holds the article to be worked upon. It is moved in a circular direction on the ring by the plate *s*, attached to the upper part of the block, the edge of the plate catching like a pawl in the notches on the lower edge of the band C. (See Fig. 4.) The band is moved from an inclined position to a horizontal one gradually by means of notches in the edge of the plate *s*, (or a separate plate may be used,) in which the lower edge of the band runs, and this edge being formed in a sort of spiral shape, gains one notch at each revolution of the band *s*, so that as it revolves it gradually approaches a horizontal position.

The parts that give motion to the looper and feeding mechanism are the knee-lever *t*, with its connecting-bar S, which has one end pivoted to the arm on the lower end of the looper-rod, and the crooked lever *y*, in which the lever *t* is hung and by which it is moved. Lever *y* is connected by the bar *r* to the arm on the tube *a*. All these parts derive their motion from a plate, *z*, hung on a pivot, *o'*, in the face of the arm O, and having the crank-pin *x'* projecting through a slot therein, which gives the plate *z* a sidewise motion, which, combined with the motion up and down, given to it by the arm O, produces a circular motion at its lower end, which is communicated to the long arm of the lever *t*, which projects through a hole in the lower end of plate *z*.

In the standard *w* a lever, *p*, is hung, having a hook on the end of it, which comes close by the needle when it is down. A slot in the lever, where it is pivoted, allows it to move forward and back, motion being given to it by the pin *d* in the arm O.

Fig. 5 shows how the rows of stitches are joined together. As the work is fed around, the stitch in a former row—that is, nearest to the needle—is drawn out and held in position for the needle to pass through it by the hook *p*.

Fig. 9 shows another way of feeding the band C around by having a ratchet made on its in-

side and an arm with a pawl to work in the ratchet on tube *a*, the arm to work in a recess cut between the two parts of the block.

Fig. 7 shows a way of feeding the work to the needle without turning it around, but by giving it an undulatory motion, the ring *j* in this case being hung on the upper part of the block, which is moved clear around by an arm and ratchet, and carrying the ring with it, obliging the band C, which in this case cannot turn, to make an undulating or waving motion, which brings all sides of the opening in succession to the needle.

The operation is as follows: The stocking or article to be worked on is drawn on over the top of the block Q, where it is secured to the band C by the ring *j*. The plate *x* is then depressed and the band C tipped up until the needle, when it comes down, will enter the edge of the fabric near the hole to be filled. The thread or yarn is threaded through the guide *v* and down through the eye of the needle *c*. Motion being given to the wheel *m*, the crank-pin *e* will move the arm O down and push the needle through the fabric near the edge of the hole, and as the needle rises the looper *s* turns around and enters between the thread and the needle, compressing the spring *d'*, which, when the needle rises farther, springs out and holds the loop ready for the needle to enter when it comes down again. Then it enters between the spring *d'* and looper-point. The looper turns back and leaves the loop on the needle, and is ready to turn and catch the thread when the needle rises, as before. This forms a row of chain-stitches, the band, with the article on it, being fed around by the plate *x*, moved by the arm A, connection, and lever *y*, and gradually moved to a horizontal position by the action of the spiral edge of the band C in the notches in the plate *x*. When the arm O has nearly reached its lowest position the pin *d* will raise the front end of the lever *p* by depressing its rear end, and push it forward by the diagonal slot at the same time; but when the arm O rises it will depress the hooked end of the lever *p* by raising the back end, and then draw it back by the diagonal slot. The hook catching a stitch in the previous row will draw it under the needle *c*, so that the needle will enter it when it comes down, and thus make it stitch through it and connect the rows together and form one piece. The outside row being taken in the edge of the fabric will join the whole together. When the needle is down the plate *x* is moved back so as to catch in a notch in the edge of the band C, and when the needle is up clear of the work the plate *x* is moved back again and carries the band C and work with it. This gives the feed for the stitches; but the feed for rows is accomplished by a notch in edge of the band C, the sides of the notch being one bent out and the other bent in, so as to take one notch higher in the side of the plate *x* at each revolution of the band, thus gradually raising it to a horizontal position.

Having thus described my machine, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The band C, in combination with the block Q and plate *x*, or its equivalent, substantially as described, and for the purpose set forth.

2. The hook, *p* or its equivalent, operating to catch a stitch in a row of stitches previously made and spread and hold it so that the needle shall pass through it, substantially as described, and for the purpose set forth.

3. The combination of mechanism for producing a rotary feed motion to form a row of stitches with mechanism for producing a vertical feed motion, substantially as and for the purpose set forth.

4. Mending or darning up a hole in a stocking or other fabric by making successive rows of chain-stitches around the opening, the outer row being taken in the edge of the fabric, and the rows joined together, substantially as herein set forth.

BENJAMIN ARNOLD.

Witnesses:
FRANK H. ARNOLD,
HORACE N. FOSTER.

A. Shedlock's Improved Mode of Repairing Hose and other Knitted Goods and Machine therefor.

113213

PATENTED MAR 28 1871

Fig 1

Fig 2

Fig 3.

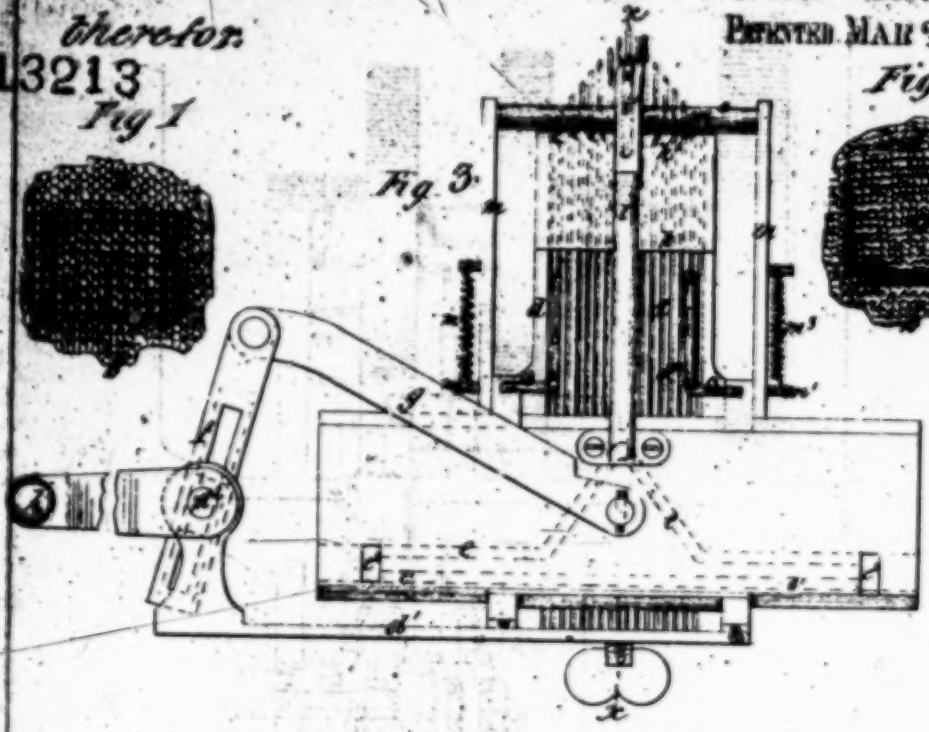


Fig 4

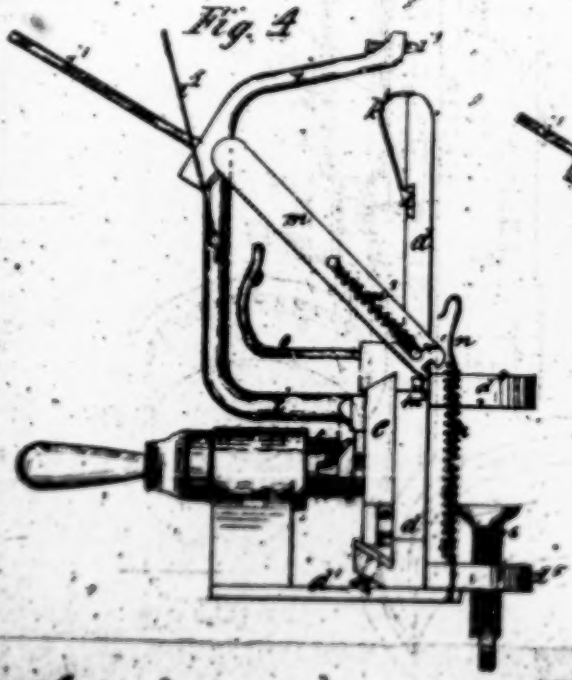


Fig 5

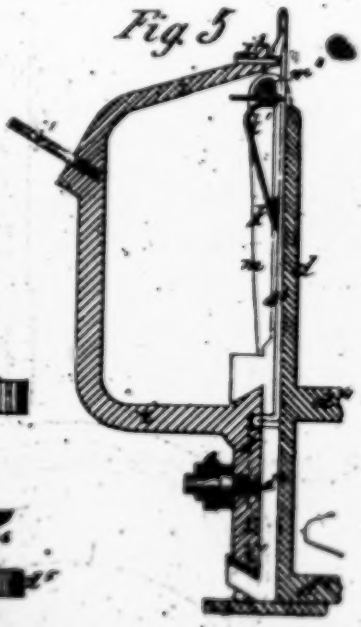


Fig 7

Fig 6

S. L. Shepard
E. A. Collins
Witnesses

Alfred Shedlock
Inventor

United States Patent Office.

ALFRED SHEDLOCK, OF NEW YORK, N. Y.

Letters Patent No. 113,218, dated March 28, 1871; antedated March 22, 1871.

IMPROVEMENT IN MACHINES FOR REPAIRING HOSE, &c.

The Schedule referred to in these Letters Patent and making part of the same.

I, ALFRED SHEDLOCK, of New York, in the county and State of New York, have invented a certain Improved Mode of Repairing Hose and other Knitted Goods, and Machine therefor, of which the following is a specification.

My invention consists in forming a knitted web over parts worn in hose and other knitted goods for the purpose of repairing the same, and also of an improved knitting-machine therefor, giving to such repairs a much better appearance than when done by darning, and rendering them less liable to wear out again in the same place, as the parts knitted over are of the same elasticity as the other parts of the hose, &c., which quality the ordinary mode of mending such goods by darning does not possess.

It also enables persons purchasing a cheap class of goods to knit, in a short time, and with little labor, an extra thickness over the parts most liable to wear, thus making such goods wear considerably longer.

In the accompanying drawing—

Figure 1 represents a piece of knitted goods so repaired;

Figure 2 is a back view of same;

Figure 3 is a front view of my improved knitting-machine;

Figure 4 is a side view of the same;

Figure 5 is a sectional view through the line *x x*;

Figure 6 is a view of the top of the frame and guide; and

Figure 7 is a view of a pointed spring-beard knitting-needle.

In figs. 1 and 2 the square dark portion *a* represents the web knitted over a piece of knitted goods, *b*, in which the hole is shown, by the light part *c*, in the center of the dark portion *a*.

The frame *d*, in which the needles work, stands vertically, and extending from the lower end of it is the arm d^1, provided with a bearing, in which the crank-shaft d^2 works.

In dovetails on the frame *d* is fitted the cam *e*, working at a right angle to the grooves d^3 d^3, in which the needles work, and it is operated by the adjustable crank *f*, and connected thereto by the pitman *g*.

The crank *f* is slotted and fastened to one end of the short shaft d^2 by a screw and nut, and on the other end of the shaft is fixed the crank-handle *h*.

On the back of the cam *e* is the bracket *i* for carrying the thread or yarn, which, if on a spool, may be placed on the wire i^1, the thread or yarn being then passed through the friction-holes of the take-up i^2 and the delivery i^3. If the thread is loose or in lengths it is passed through the hole in the end of wire i^3, the take-up i^2, and delivery i^3.

Near the upper end of the frame *d* is fitted, in a dovetail, the piece *k* for holding the needles in their grooves d^3 d^3. It is also extended to the top of the frame *d* to form a guide, k^1, over which the goods being repaired are pulled, the said guide having grooves k^2 k^2, as shown at fig. 6, converging from the center line, the object of which is to spread or stretch the goods as they are being pulled over.

The presser-frame *m* is attached to the frame *d* by the round pins m^1 m^1 fixed in the sides of *d* and passing through slots in the frame *m*. At the lower ends of the frame *m* are square slots, which fit over the square pins m^2 m^2, fixed in *d*, and just below the round pins m^1 m^1, the object of which is to hold the presser-frame *m* in the position shown at figs. 3 and 5, and it is held down by the springs m^3 m^3, which are connected to the round pins m^1 m^1 and pins in the sides of the presser-frame *m*.

The upper part m^4 of the presser-frame *m* lies over the top of the frame *d*, and is formed so as to close the spring-beards of the needles as they descend. It is also provided with a series of projections, which lie between and prevent the needles from raising the goods as they pierce it. The goods are also held between the guide k^1 and presser m^4 by the springs m^3 m^3. The presser m^4 is provided with grooves corresponding to the grooves k^2 k^2 on the guide k^1.

On the back of *d* are cast the lugs d^4 d^4; through the lower one is the screw d^5, for clamping the machine to the table.

For repairing different-sized holes a certain number of the needles on each side may be dropped from the cam *e* into the straight slot e^1 by loosening the nut which holds the adjustable crank *f* to the shaft d^2 and setting the cam *e* over so as to bring the openings e^2 e^2 opposite the lower ends of the needles to be dropped, then set the adjustable crank so as to just work down the outside needles. The presser-frame *m* is raised sufficiently to release the square pins m^2 m^2 from the square slots at the lower ends of the frame *m*, and moved as shown at fig. 4; the hose, &c., to be repaired is then placed over the frame *d* with the hole lying over the guide k^1; the frame *m* is moved back and the springs m^3 m^3 cause it to press on the goods; the cam *e* is then moved by turning the handle *h* so as to raise the needles through the goods. The hooks on the ends of the springs *n n*, of which there are two or more, are hooked in the goods, and then, by turning the handle *h*, the thread-delivery lays the thread under the beards of the needles, and they draw it down through the goods by the cam *e* acting on their lower ends, which are bent, as shown at fig. 7, so as to enter the cam-groove, the presser m^4 closing the spring-beards of the needles as they pass it.

When the needles commence to rise again the loops they each form are slackened, so that the springs *n n* draw the hose, &c., over to the extent of the loops,

the needles again, drawing the goods a little in front of the first row of stitches, and, again taking the thread and moving down with it through the goods and loops already formed, discharge the first loops over the tops of the needles, the springs *n n* again drawing the goods over to the extent of the loop, and so on until the hole is knitted over or the extra thickness worked on the parts, as required.

To finish off the patch all that is necessary is to draw the end of the thread or yarn through the last row of loops with a common needle or hook provided therefor similar to a crochet-hook.

The object of the take-up *f* is to keep the thread or yarn always taut between the delivery and the needles.

The wires *o o* are for keeping the hook, &c., off from the working parts of the machine.

Fig. 7 represents a pointed spring-beard needle, which may be used, if found necessary, on close-knitted goods.

I claim—

1. The combination of the row of needles, presser m^1, and guide k^1, operating so as to knit patches on knitted goods, for the purposes of repairing and strengthening the same, substantially as described.

2. The springs *n n*, in combination with the presser m^1 and guide k^1, substantially as described.

3. The presser m^1, provided with a series of projections, which lie between and prevent the needles from raising the goods as they pierce it, substantially as described.

4. The guide k^1, in combination with the presser m^1, substantially as described.

ALFRED SHEDLOCK.

Witnesses:
P. L. SLAYTON,
R. A. COLLINS.

ELIZABETH G. HARLEY.

Darning-Lasts.

No. 156,702. Patented Nov. 10, 1874.

Fig. 1.

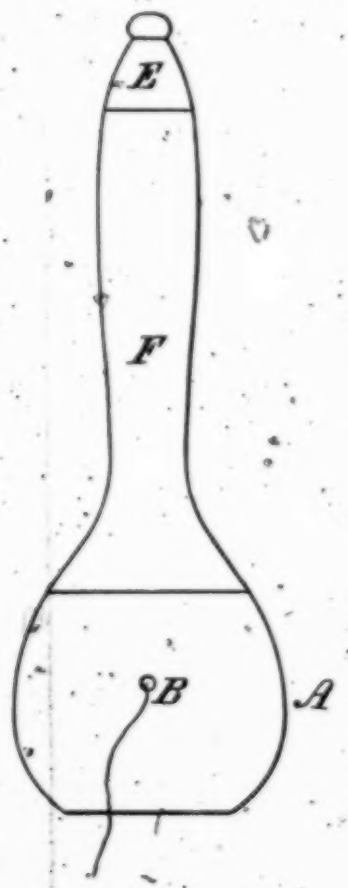
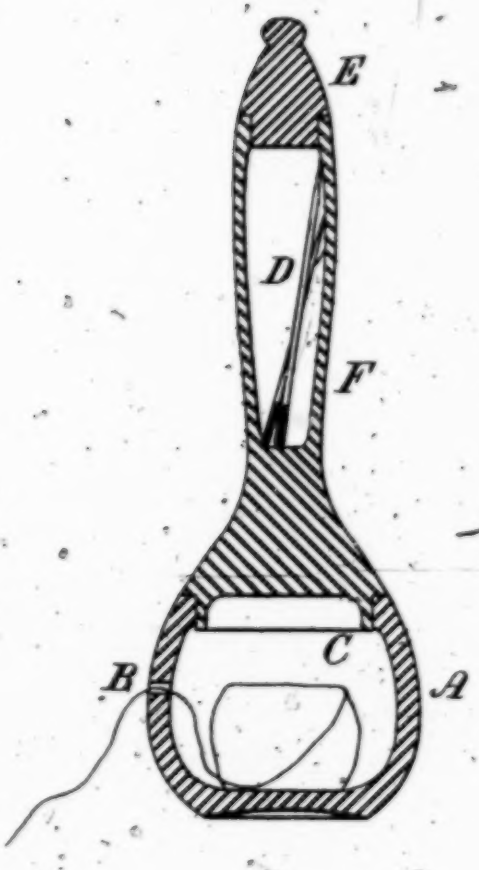


Fig. 2.



Witnesses.

J. Snowden Bell.

Mary B. Harley.

Inventor.

Elizabeth G. Harley

1040

UNITED STATES PATENT OFFICE.

ELIZABETH G. HARLEY, OF HADDONFIELD, NEW JERSEY.

IMPROVEMENT IN DARNING-LASTS.

Specification forming part of Letters Patent No. **156,702**, dated November 10, 1874; application filed September 17, 1874.

To all whom it may concern:

Be it known that I, ELIZABETH G. HARLEY, of Haddonfield, in the county of Camden and State of New Jersey, have invented a certain new and useful Improvement in Darning Apparatus, of which the following is a specification:

The object of my invention is to provide a simple and convenient device for use in the operation of darning, embroidering, or the like, which shall embody in its construction means for supporting the material worked upon, and receptacles for the thread and needles; to which end my improvement consists in combining, with a hollow stretcher having a concave surface for holding the work, and a receptacle for containing a ball of thread, a hollow handle, which serves as a needle-receptacle, all as hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a view, in elevation, of a darning apparatus embodying my improvements; and Fig. 2, a longitudinal central section of the same.

To carry out the objects of my invention, I provide a stretcher, A, which is a hollow box, of spherical or spheroidal form, truncated at bottom, and recessed so as to provide a concave surface, A′, over which the material to be darned is stretched. The stretcher A has an opening, C, at top, for the insertion of the ball of thread, and a small hole, B, on the side, through which the thread is led out. The opening C of the stretcher is closed by the extremity of the hollow handle F, in which is formed a needle-receptacle, D, closed by a plug, E.

The instrument so constructed is a useful adjunct in darning and embroidery. The concave surface formed upon the end of the stretcher enables the material to be held thereon as tightly as may be desired, while giving ample room for the movements of the needle, and the thread and needle receptacles in the stretcher and its handle are conveniently located for the operator.

I am aware that hollow oval darning implements having cavities for the reception of needles and thread have been heretofore known, and do not, therefore, broadly claim such device.

I claim as my invention—

The within-described darning implement, consisting of the hollow thread-holding stretcher A, having a concave surface, A′, formed upon it, in combination with a handle, F, which closes the stretcher, and contains a needle-receptacle, D, substantially as set forth.

ELIZABETH G. HARLEY.

Witnesses:

J. SNOWDEN BELL,

MARY B. HARLEY.

(No Model.)

F. W. STEWART.

DARNING ATTACHMENT FOR SEWING MACHINES.

No. 312,923. Patented Feb. 24, 1885.

Fig. 1.

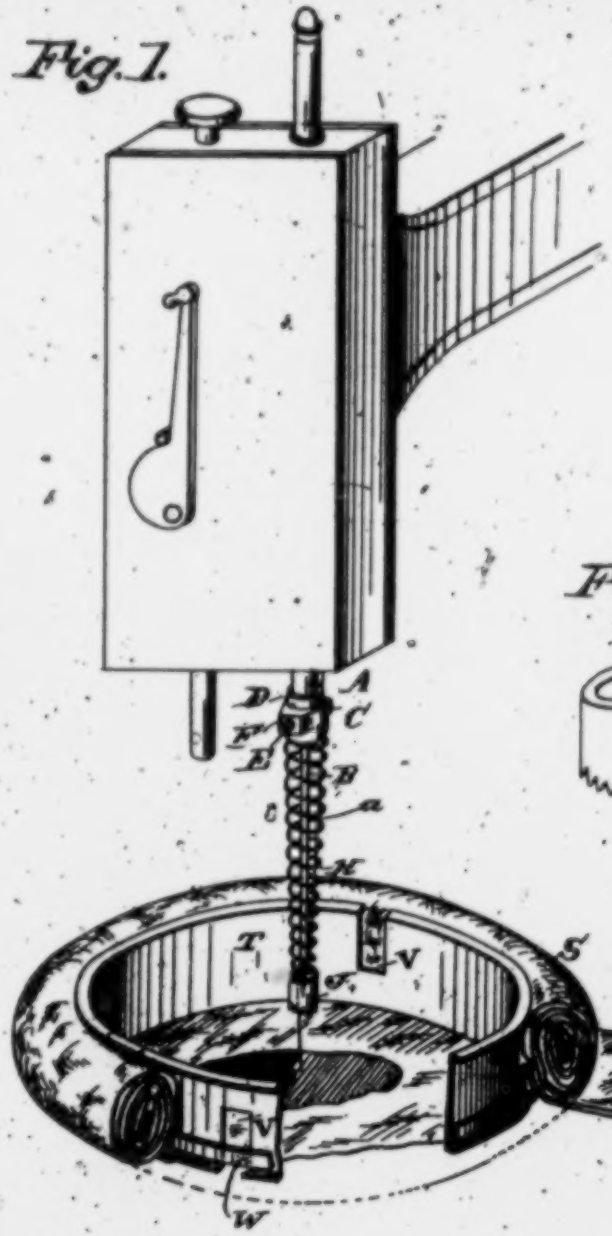


Fig. 2.

Fig. 3.

WITNESSES:

Otto Berger

Chas. Lucott

INVENTOR:

Frederick W. Stewart

BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FREDERICK W. STEWART, OF OSWEGO, NEW YORK.

DARNING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 312,923, dated February 24, 1885.

Application filed September 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. STEWART, of Oswego, in the county of Oswego and State of New York, have invented a new and Improved Darning Attachment for Sewing-Machines, of which the following is a full, clear, and exact description.

My invention is an improvement in the class of stocking-darning attachments for sewing-machines in which a spiral spring and a sleeve encircling the needle are employed in connection with a ring that rests on the bed-plate, and to which the stockings are secured.

The invention consists in the construction and combination of parts, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of my improved darning attachment for sewing-machines, showing it applied. Fig. 2 is a perspective view of the collar to which the top of the spring is fastened. Fig. 3 is a perspective view of the toothed ring secured to the bottom of the spring.

The usual presser-foot on the sewing-machine is removed and the presser-bar is raised as high as possible to be out of the way. On the lower end of the needle-bar A, in which the needle B is held by a binding-screw, C, in the usual manner, a collar, D, is held by a binding-screw, E, in a boss or projection, F, of the collar, the outer end of the said screw projecting but slightly. The collar D is provided in its top edge with a notch, G, for receiving the binding-screw C, that holds the needle in the needle-bar. A spiral spring, H, tapered from the top to the bottom, has its upper end secured on the bottom edge of the collar D, and the said spring surrounds the needle. A ring or sleeve, J, surrounding the point of the needle, is secured to the lower end of the spring, the bottom edge of the ring or sleeve J being toothed and projecting slightly below the point of the needle.

The operation is as follows: Into the stocking, S, to be darned a ring, T, is passed, which is provided with outwardly-projecting flanges at the top and bottom edges in such a manner that the hole in the stocking is about in the middle of the ring. An elastic band, W, is then passed around the stocking and the ring T, thus holding the stocking to the ring, and the stocking is rolled up on the outside of the ring, as shown in Fig. 1. That part of the stocking in which the hole is that is to be darned is stretched taut over the edges of the ring, and can be placed flat on the sewing-machine plate, so that when the needle-bar descends the toothed edge of the ring J is pressed on the stocking, thus holding the same in place during the time the needle forms the loop. As the toothed edge of the ring J is below the point of the needle, the toothed edge will always be pressed on the stocking before the needle enters. The stocking is shifted by hand and not by the feeder. The stocking can easily be shifted during the time the needle and ring J are raised. The ring J protects the point of the needle from being injured by coming in contact with the edge of the band or ring T. The thread *a* is carried down through the spiral spring and through the ring J, as shown. The ring T is provided with notches V in both edges, to permit passing the ring under the needle with either edge up. The ring J and lower end of the needle are nearer the sewing-plate than the top edge of the ring T is, and the notches V are provided to let the needle and ring J pass.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a darning attachment for sewing-machines, the ring T, having notches V in its top and bottom edges, in combination with the needle and bed-plate, substantially as herein shown and described.

2. In a darning attachment for sewing-machines, the combination, with the needle, its collar, and the sleeve or ring T, of the spiral spring attached to said collar and sleeve, the aggregate length of the sleeve and spring (when the latter is normally extended) being greater than the portion of the needle which they encircle, as shown and described, whereby said sleeve is held normally projected slightly below the point of the needle, as specified.

3. The combination, with a needle-bar, of a collar held on the same, a spring surround-

ing the needle and secured to the collar, and a sleeve or ring secured to the lower end of the spring and having its bottom edge toothed, substantially as herein shown and described.

4. The combination, with a needle-bar, of the collar D, having a boss projection, F, the spring H, secured to the collar D, and the toothed ring or sleeve J, secured to the lower end of the spring, substantially as herein shown and described.

5. In a stocking-darning attachment for sewing-machines, the combination, with the needle-bar, of a spring held on the same, a ring held on the lower edge of the needle-bar and having its bottom edge toothed, a flanged ring adapted to be placed in the stocking to be darned, and a band surrounding the ring and stocking, substantially as herein shown and described.

FREDERICK W. STEWART.

Witnesses:
DANIEL E. TAYLOR,
DAVID H. JUDSON.

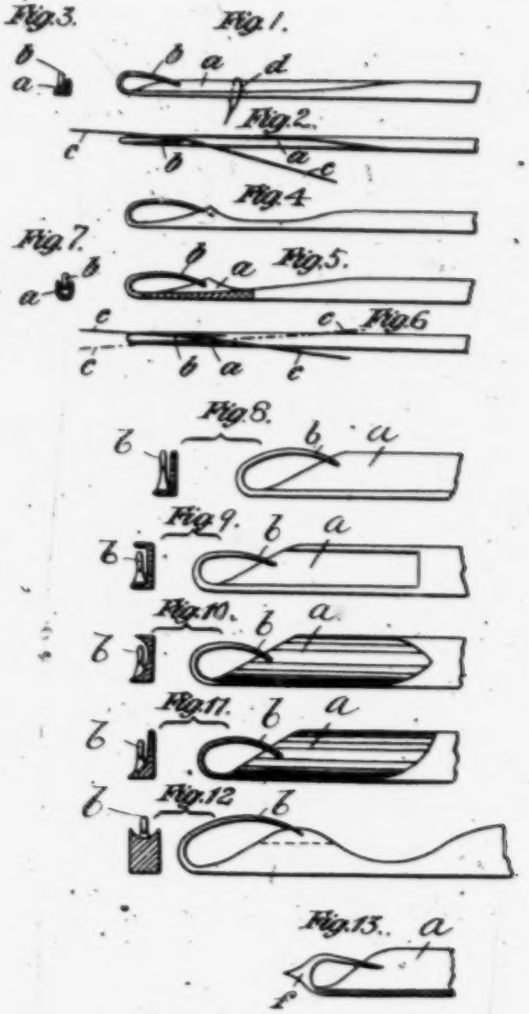
No. 726,758. 1044 PATENTED APR. 28, 1903.

F. B. REUTHER.

NEEDLE FOR KNITTING, &c.

APPLICATION FILED JAN. 9, 1902.

NO MODEL.



WITNESSES:
Isabella Haldron.
Adelaide Claire Hearn

INVENTOR.
Friedrich Bernhardt Reuther.
BY Richards & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRIEDRICH BERNHARD REUTHER, OF GEYER, GERMANY.

NEEDLE FOR KNITTING, &c.

SPECIFICATION forming part of Letters Patent No. 726,758, dated April 28, 1903.

Application filed January 9, 1902. Serial No. 89,040. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH BERNHARD REUTHER, a subject of the King of Saxony, and a resident of Geyer, in the Kingdom of Saxony, German Empire, have invented certain new and useful Improvements in Hook-Needles for Crocheting, Knitting, Netting, Embroidering, Stitching, and Like Operations, of which the following is a full, clear, and exact description.

Hitherto in order to form the stitches in crocheting, knitting, working, embroidering, and stitching machines and the like in addition to tongue-needles only simple hook-needles were employed having an open hook, which had to be depressed in order to allow the stitches to slide off over the hook. The depressing device for this purpose took up a considerable space and was therefore deleterious to the machine and also made the employment thereon of many other devices quite impossible. The same drawbacks are found with tongue-needles and tubular needles. In the former case it is the tongues and in the latter the movable parts for covering the points of the hooks which require space for their movements, thus preventing the use of other appliances.

In the drawings, Figure 1 is a side view of one form of my invention. Fig. 2 is a plan view of Fig. 1; and Fig. 3 is a transverse section of Fig. 2, taken just in front of the point of the hook. Fig. 4 is a side view of a modified form of needle. Fig. 5 is a similar view, partly broken away. Fig. 6 is a plan view of Fig. 5, and Fig. 7 is a cross-sectional view of Fig. 5. Figs. 8, 9, 10, 11, and 12 are views showing in elevation and transverse section various modifications of the invention. Fig. 13 is a sectional view of a further modification.

By the present invention a hook-needle is produced which removes the objections stated. It is characterized by the hook being made to enter a recess in the needle-shank, and thereby not requiring to be depressed, and also by the needle-shank being of such a form that it still allows the thread to be slipped under the hook, the thread entering near the point of the hook into a recess in the needle-shank and being thus enabled to slip under the hook. The recess in the needle-shank, together with the point of the hook which lies therein, may either be arranged at one side of the needle or in the center or middle of the same, in which latter case the thread may be slipped in from both sides of the hook. The thread is slipped under the hook by first laying it in a direction lengthwise of the needle, passing it down along the side of the hook, and thence under the point of the hook.

Figs. 1, 2, and 3 of the accompanying drawings show the first-named form of construction, and Figs 4 to 7 the second of these two constructions, of the needle. In the first case a recess *a* is formed on one side of the needle-shank in which the hook-point *b* lies. Between the point *b* and the needle-shank the thread *c* slips when suitably guided, and thus is enabled to enter the hook of the needle. When the needle moves backward, the stitch *d*, hanging on the needle-shank, escapes freely away over the hook, as the latter, as may be seen from the drawings, offers no resistance to it, and thus no pressing down of the point of the needle is required. Of course the recesses *a* and the hook-point *b* may be suitably situated on one side or the other of the needle-shank.

In the forms of construction shown in Figs. 4 to 7 the recess *a* is in the center of the needle-shank and is formed in the shape of a slot, in which the needle-point *b* lies. The crocheting-thread *c* may thus be slipped into the hook from one side or from the other, as desired. (See the positions of the thread *c* shown in full and dotted lines in Fig. 6.)

The needle-shank at the place where the hook-point comes may be otherwise of any suitable shape, and Figs. 8 to 12 show some forms of construction having different profiles.

In needles which are intended to pierce material a point *f* may, as is well known, be formed in front of the needle—as shown, for instance, in Fig. 13.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A needle for the purpose described comprising a shank having a recess therein and a normally non-depressed hook having its point lying in said recess throughout the

stitch-forming operation, substantially as described.

2. A needle for the purpose described comprising a shank having a recess therein and an incline, and a normally non-depressed hook having its point inclining downwardly and lying in said recess throughout the stitch-forming operation, the incline on the shank being adjacent to the hook of the needle, s stantially as described.

In witness whereof I have hereunto set hand in presence of two witnesses.

FRIEDRICH BERNHARD REUTHE

Witnesses:
GUSTAV TIPPMANN,
G. LOUIS MÜLLER.

No. 757,378. PATENTED APR. 12, 1904.

C. R. WOODWARD.

KNITTING MACHINE NEEDLE.

APPLICATION FILED AUG. 24, 1903.

NO MODEL.

Fig 2

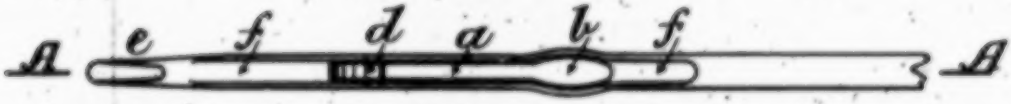


Fig 1

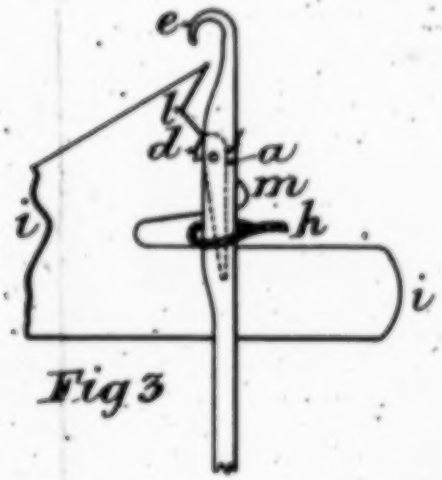


Fig 3

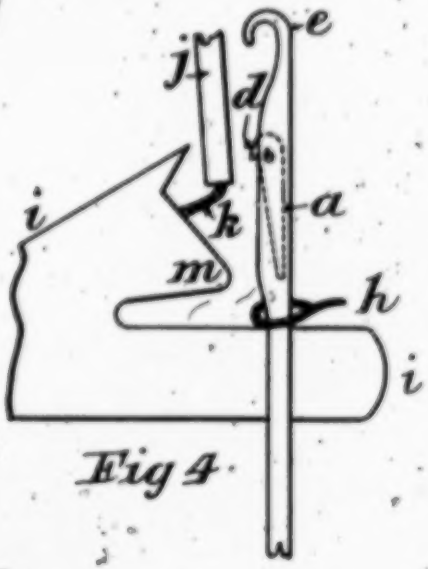


Fig 4

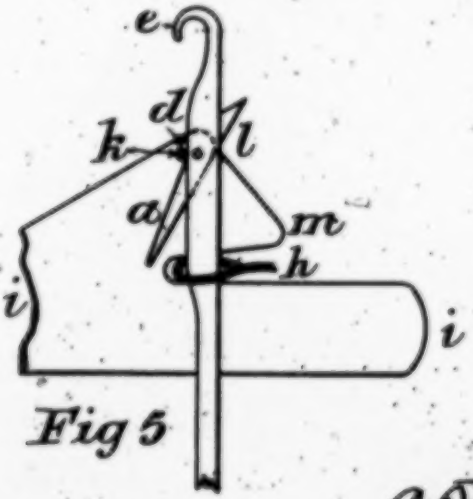


Fig 5

Witnesses:
A. H. Robbins
H. Lee Skelmer

Inventor:
C. R. Woodward
by Cornell & Dick
Att'ys

No. 757,878. 1048 Patented April 12, 1904.

UNITED STATES PATENT OFFICE.

CHARLES RICHARD WOODWARD, OF NOTTINGHAM, ENGLAND.

KNITTING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 757,878, dated April 12, 1904.

Application filed August 24, 1903. Serial No. 170,543. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RICHARD WOODWARD, a subject of the King of Great Britain, and a resident of the city of Nottingham, in the county of Nottingham, England, have invented new and useful Improvements in Knitting-Machine Needles, of which the following is a specification.

This invention relates to latch-needles of the kind used in knitting-machines; and it consists of a latch-needle constructed as herein described and arranged to operate so that the loop formed in the process of knitting cannot be knocked over the needle-head unless the thread for a new loop has been fed to such needle, whereby "press-offs" and the incident losses are avoided.

The object of this invention is the construction of a latch-needle so arranged that the old loop in the ordinary process of knitting cannot be knocked over the needle-head unless thread for a new loop has been fed to such needle, whereby press-offs and their consequent losses are avoided.

In the drawings which are attached hereto, Figure 1 is a plan of the improved needle. Fig. 2 is a section on the line A A, Fig. 1; and Figs. 3, 4, and 5 are diagrams illustrating the action of knitting with the improved needle.

According to this invention the needle-latch *a*, which is pivoted between the sides of the needle at *c* and has a spoon end *b* for covering the point of the hook *e*, is provided with a projection or nose *d*, which projects above the sides of the needle, as shown in Fig. 2, when the latch is open. The sides of the needle form a recess *f*, which is large enough to contain the whole of the latch except the projection or nose *d*, and it is therefore impossible for the old loop to pass under the spoon end *b* of the latch, as in an ordinary needle. At the bottom of the recess *f* and under the pivot *c* there is an opening *g* to receive the projection *d* when the latch is closed, and the parts are so proportioned that no part of the latch ever projects beyond the back of the needle.

The action of the needle according to my method of working is illustrated in Figs. 3, 4, and 5, which show also a form of sinker adapted for use with the improved needle. In Fig. 3 the needle is shown in its normal position, with the old loop *h* round the latch *a*. When the needle reaches the knitting-cam, it rises until the latch is clear of the loop *h*, which is held down by the lower neb of the sinker *i*. The sinker is then withdrawn to permit of the thread-carrier *j* laying the thread *k* for the new loop, this thread being laid below the latch-pivot, as shown in Fig. 4, instead of above it, as with an ordinary needle. The sinker *i* is then moved forward, and the upper neb *l* draws the loop. At the same time the needle descends, and the newly-drawn loop, coming into contact with the projection *d*, opens the latch to permit the old loop *h* passing under it, as shown in Fig. 5. The sinker *i* is then withdrawn to allow of the loop *h* passing the sinker-nose *m* as the needle descends to its knocking-over position, after which the sinker returns to the position shown in Fig. 3 and holds down the work as the needle rises to its normal position. When, however, a thread breaks or from any other cause is not fed to the needle for the new loop and the needle descends to its knocking-over position, the old loop passes over the latch into the needle-hook instead of under the latch and over the hook, as with an ordinary needle.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A knitting-machine needle provided with a recess and a latch arranged to lie in said recess, the said latch being provided with a nose which projects above the needle-stem when in its open position, substantially as set forth.

2. A knitting-machine needle provided with a recess in its stem, and a latch pivoted in said recess, one end of said latch being spoon-shaped and arranged to lie in said recess when in its open position, and its opposite end provided with a nose that is arranged to project outside and above the surface of the needle-stem when the latch is open, substantially as set forth.

3. The combination of a hooked needle-shank, a double-ended pivoted latch, a spoon at one end and a nose or projection at the

other end of the latch, the said needle-shank being provided with a recess to receive and cover the spoon when the latch is open and the nose or projection when the latch is closed, and with a slot at the bottom of the recess, substantially as herein set forth.

In testimony whereof I have signed my name to this specification in the presence of tw scribing witnesses.

CHARLES RICHARD WOODW

Witnesses:
C. HERBERT HOLLEWORTH,
WILLIAM H. POTTER.

C. F. MACK.

MACHINE EMBROIDERY NEEDLE.

APPLICATION FILED JUNE 10, 1908.

914,664.

Patented Mar. 9, 1909.

Fig. 1.

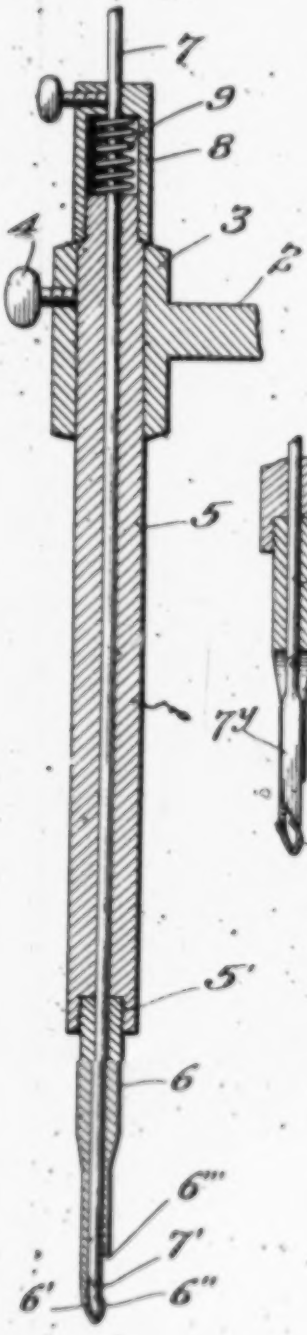


Fig. 2.

Fig. 4.

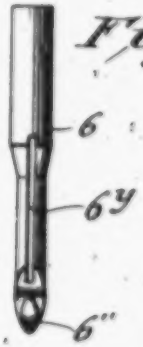


Fig. 5.

Fig. 6.

Fig. 3.

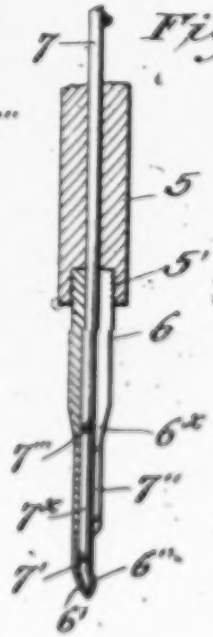
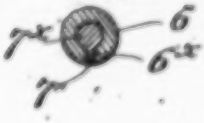


Fig. 7.



Witnesses

M. C. Lyddane

F. D. L. Mulhall

Inventor

Carl F. Mack

By Joshua R. H. Potts

Attorney

UNITED STATES PATENT OFFICE.

CARL FRED MACK, OF YORK, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ROBERT F. STRAYER, OF YORK, PENNSYLVANIA.

MACHINE EMBROIDERY-NEEDLE.

No. 914,664. Specification of Letters Patent. Patented March 9, 1909.

Application filed June 10, 1908. Serial No. 437,823.

To all whom it may concern:

Be it known that I, CARL F. MACK, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Machine Embroidery-Needles, of which the following is a specification.

My invention relates to needles for embroidery machines, and while I do not wish to limit myself to this class alone, the invention particularly relates to a needle for such machines as are provided with a single needle reciprocating vertically in the head of the machine arm and coacting with a shuttle beneath the work.

The ordinary needle as used upon embroidering machines is provided with a hook at its lower end, and this hook when the needle is raised is liable to catch in the threads of the material being embroidered and to thereby tear said material or cut the threads.

The object of this invention is to overcome this objection by providing a needle which shall not hook into and tear the material when, after picking up a stitch, it is raised through the cloth.

To this end my invention consists in an embroidery needle having a hook at one end, said needle being hollow and having a sliding pin or rod carried therein, which is so arranged as to close the open hook of the needle immediately upon the needle commencing its rising movement, thus preventing the barb of the hook from catching in the threads of the cloth.

I have shown in the figures three embodiments of my invention.

Figure 1, is a longitudinal section of a needle and its supporting mechanism. Fig. 2, is a perspective view of the needle point proper and its interior rod. Fig. 3, is a section of the lower end of the needle body and needle point, the needle being modified from that shown in Fig. 1. Fig. 4, is a side view of the form shown in Fig. 5. Fig. 5, is a longitudinal section of the lower end of the point shown in Fig. 4, the central closing pin being shown in position. Fig. 6, is a fragmentary perspective of the lower end of the interior rod shown in Fig. 3. Fig. 7, is a transverse section of the needle point shown in Fig. 3.

Like reference characters throughout the several views designate like parts.

In the drawings 2 designates the reciprocating arm on which the needle is mounted, provided with a sleeve 3 surrounding the needle, the needle being fastened within the sleeve by the set screw 4. The body of the needle 5 is tubular and at its lower end the tubular portion is enlarged as at 5′, and the walls thereof are interiorly screw-threaded for engagement with the needle point proper 6. This point or lower end of the needle is tapered toward its extremity and is tubular in section in the form shown in Figs. 1 and 2. At its lower end it is provided with the usual hook 6′ curved upwardly and inwardly as at 6″. At the front of course, the material of the needle is cut away as at 6‴ in Fig. 2.

Passing longitudinally through the tubular body 5 and through the tubular needle point 6 is a rod or pin 7 which acts to close the otherwise open loop of the hook 6. This rod is connected to mechanism whereby when the needle rises after engaging with the thread underneath the cloth, the rod 7 will be forced downward to a sufficient extent to bring the point of the rod 7′ against the point of the hook 6′, thus closing the hook and preventing its catching on the cloth as the needle passes upward through the same.

While I may use any suitable mechanism to this end, I have shown the rod 7 as attached to a hollow cap 8 into which the upper end of the body portion 5 of the needle projects. The cap 8 has therefore a sliding engagement with the body 5. Means are provided whereby the cap shall be held stationary through a portion of the upward stroke of the needle. Between the upper end of the body 5 and the upper end of the cap 8, I provide the spring 9 which thus tends to prevent the cap from following the body 5 downwardly. This of course, prevents the rod 7 from following downward with the needle body and needle, and therefore on its downward movement after it has passed the cloth the needle continues its movement below the end of the rod 7, and thus the hook is opened for engagement with the loop formed by the thread carrier.

It is to be understood of course, that my invention does not extend to the auxiliary

mechanism whereby the motion of the needle takes place, but relates entirely to the needle itself and the closing device.

In Figs. 4 and 5, I have shown a tubular needle point the lower portion whereof is bifurcated, or slotted from one point of its diameter to an opposite point straight across the needle. The central rod is flattened at its lower end, the flattened sides of the rod engaging with the inside faces of the bifurcated or slotted portion 6^y. The flattened portion of the rod is indicated by the character 7^y. This form of my invention permits the lower end of the needle to be very easily formed, the flattened sides preventing the rod from turning within the tubular needle, and the lower end of the rod may be made removable so that a new end may be substituted in the manner shown in Fig. 6.

In Figs. 3 and 7, I show a tubular needle point which is slotted on one side for its entire length as at 6^x. The central rod 7 being provided with a fin or rib 7″, which engages in this slot and thus limits the motion of the rod 7 and prevents its turning within the needle point. I have also shown in Fig. 6, the rod 7 as being formed in two parts, the lower part thereof 7^x being joined to the upper part by a pin 7‴, whereby the lower end of the rod 7 when it becomes worn may be easily renewed without the necessity of providing an entirely new rod.

The advantages of my invention have been heretofore set forth and it is to be understood that while I have designed this needle for use in embroidering machines, I do not wish to be limited thereto, as it may be used in any situation wherein needles of this kind would be advantageous and be operated by any suitable means.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A needle for embroidering machines consisting of a continuously tubular needle body, a longitudinally hollow hooked needle point detachably secured to the lower end of said tubular body, and a longitudinally movable rod extending entirely through and reciprocating in the tubular body and the said point, adapted to contact at its lower end with the hook of the needle to close the same.

2. A needle for embroidering machines consisting of a continuously tubular body and a longitudinally hollow hooked needle point screw threaded into the lower end of the tubular body and detachable therefrom, said point being tubular at its upper end and slotted toward its lower end, and a longitudinally movable rod extending entirely through the hollow body and point and adapted to contact at its lower end with the hook of the needle.

3. A needle for embroidering machines consisting of a tubular body and a longitudinally hollow needle point tubular at its upper end and slotted at its lower end and there provided with a hook, and a rod passing through the hollow body and point and contacting with the end of the hook to close the same, said rod being formed in two parts, the lower end thereof being detachable from the upper portion whereby the end of the rod may be renewed when worn.

4. A needle for embroidering machines consisting of a tubular body and a longitudinally hollow, hooked needle point carried on the lower extremity thereof, a longitudinally movable rod passing through the hollow body and point and adapted to contact at its lower end with the hook of the needle, the upper end of said body being provided with a longitudinally movable cap, means for rigidly fastening the cap to the said interior rod, and a spring surrounding the rod bearing at one end against the upper end of the needle body and at its other end against the inside of the cap.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL FRED MACK.

Witnesses:
ELMER C. ZEIGLER,
GEORGE S. DELLINGER.

1053

H. R. GRAF.

HOLDER FOR MENDING STOCKINGS.

APPLICATION FILED MAY 4, 1908.

916,926.

Patented Mar. 30, 1909

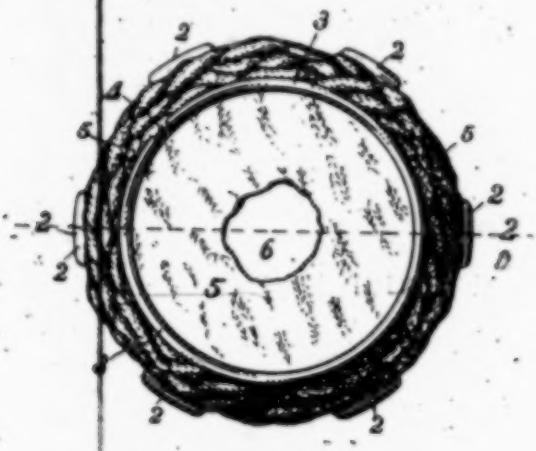


Fig. 1

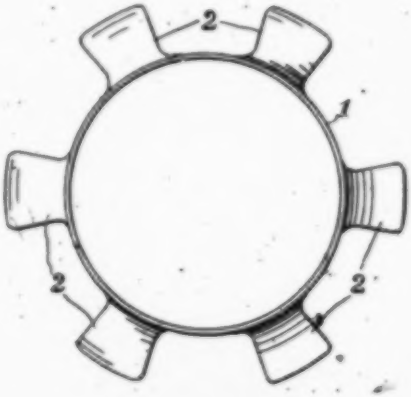


Fig. 3.

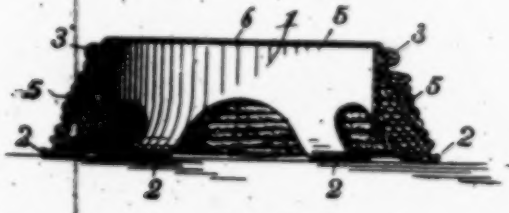


Fig. 2.

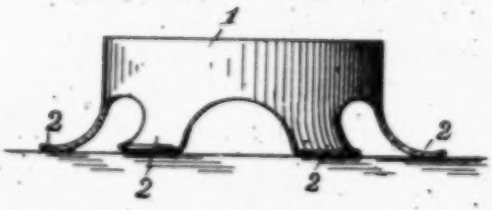


Fig. 4.

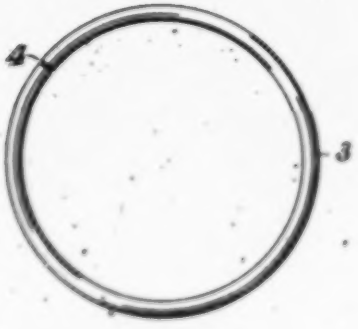


Fig. 5.

Witnesses

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F. C. Van Antwerp

Inventor

Herman R. Graf

By Luther V. Moulton

Attorney

UNITED STATES PATENT OFFICE. 1054

HERMAN R. GRAF, OF JACKSON, MICHIGAN.

HOLDER FOR MENDING STOCKINGS.

No. 916,926. Specification of Letters Patent. Patented March 30, 1909.

Application filed May 4, 1908. Serial No. 430,702.

To all whom it may concern:

Be it known that I, HERMAN R. GRAF, a citizen of the United States of America, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Holders for Mending Stockings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in holders for mending stockings; and its object is to provide a simple and practical device, and to provide the same with various new and useful features, hereinafter more fully described and particularly pointed out in the claims.

My invention consists essentially of a straight tubular inner member having outwardly projecting lower portions to retain the stocking thereon, and a clamping ring adapted to yieldingly surround the upper part of the tubular portion and hold the stocking stretched over the end of the tubular portion, as will more fully appear by reference to the accompanying drawings, in which:

Figure 1. is a plan view of my device as it appears when in use; Fig. 2. a transverse vertical section of the same on the line 2—2 of Fig. 1.; Fig. 3. a plan view of the inner member only; Fig. 4. a side elevation of the same; and Fig. 5. a plan view of the clamping ring only.

Like numbers refer to like parts in all of the figures.

1 is a short tubular inner member straight and smooth on the outside and adapted to go within the stocking to be mended and with its upper edge surrounding the opening or hole to be darned.

2 is a series of downwardly and outwardly turned projections integral with the tubular portion 1 and extending from the lower part of the same and adapted to support a stocking or other garment when placed upon its end.

3 is a ring of resilient material, preferably round spring steel, divided at one side as at 4 whereby the same is slightly yieldable to spring outward and firmly surround the upper part I of the inner member and to clamp the stocking 5 therebetween as illustrated in Fig. 1, which shows a stocking placed on the device with the hole to be mended in the axis of the tubular portion, the surrounding material being stretched over the top of the same and securely held by the ring 3. When thus arranged, the device is turned in reverse position with the part of the stocking placed upon a sewing machine bed, and the hole darned by moving the device under the needle of the same, or the hole may be manually mended in any convenient manner.

It will be noted that the device is very simple consisting of only two integral parts; also that the tubular part is straight and has no flange, or teeth to either cut or tear the fabric; that the ring is thus required to yield but slightly, and a steel ring divided at one side can be used thus insuring both strength and durability in this part of the device; and that the ring also forms a flange to hold the fabric between itself and the outwardly turned members.

What I claim is:

1. A holder for mending stockings, comprising a straight tubular upper portion extended outward at the lower portion to support a stocking thereon, and a ring of resilient material divided at one side to closely surround the said upper tubular portion and to extend outward beyond the upper edge thereof to form a flange, whereby the fabric is stretched over the end of the tubular portion and also held on the outside of the tubular portion.

2. A holder for mending stockings, comprising an upper straight tubular portion, downwardly and outwardly curved projections integral therewith and spaced apart at regular intervals, and a ring formed of resilient material and divided at one side, and also adapted to closely surround the said upper portion and to extend outward therefrom and beyond the upper edge thereof to form a flange around the same.

In testimony whereof I affix my signature in presence of two witnesses.

HERMAN R. GRAF.

Witnesses:
ANTON ROESNER,
LUTHER V. MOULTON.

A. R. BILLINGTON.

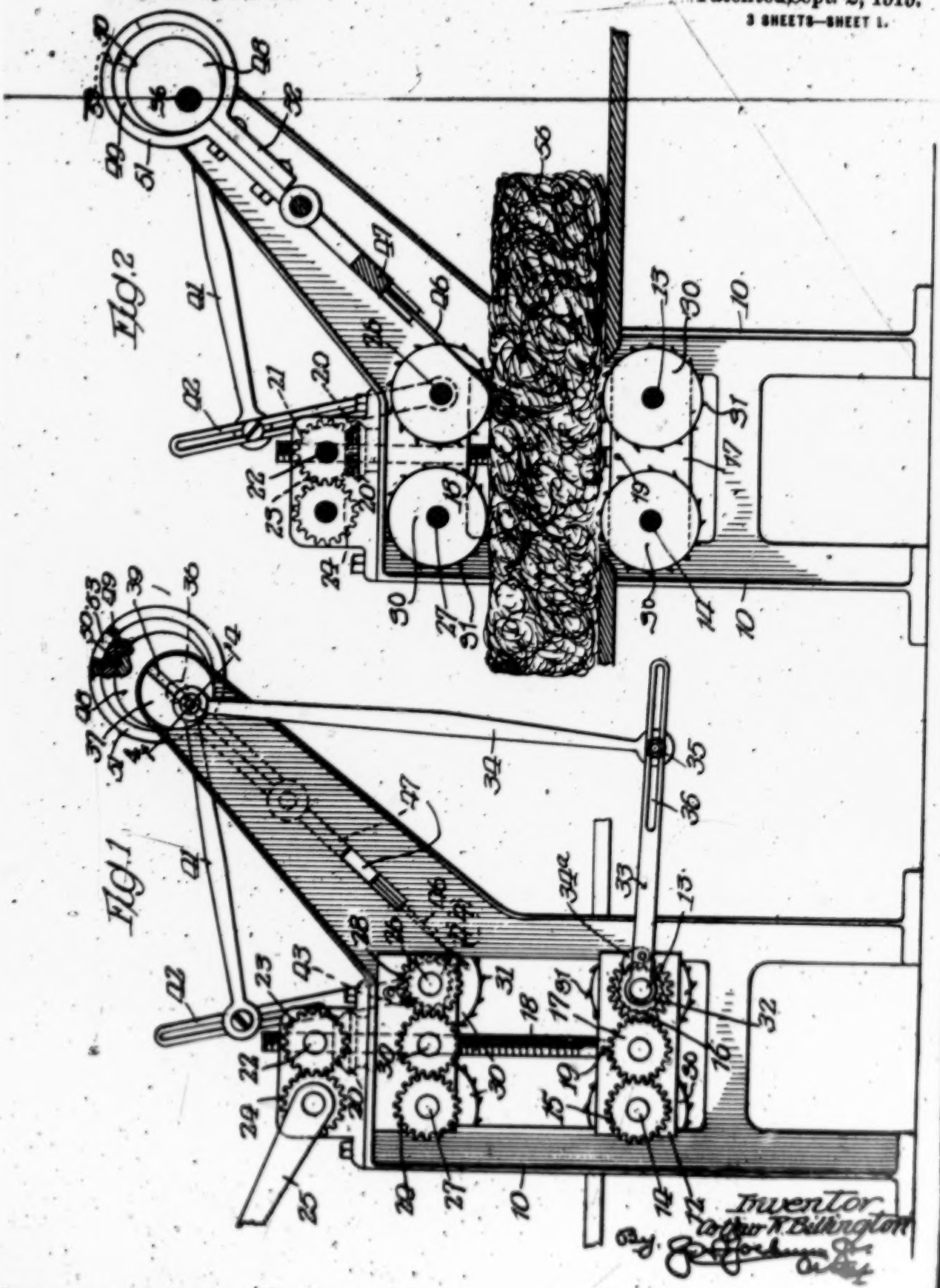
METHOD FOR INTERLACING CURLED HORSEHAIR.

APPLICATION FILED APR. 9, 1917.

1,314,565.

Patented Sept. 2, 1919.

3 SHEETS—SHEET 1.



A. R. BILLINGTON.

METHOD FOR INTERLACING CURLED HORSEHAIR.

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3 SHEETS—SHEET 2.

A. R. BILLINGTON.

METHOD FOR INTERLACING CURLED HORSEHAIR.

APPLICATION FILED APR. 9, 1917.

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3 SHEETS—SHEET 3.

Fig. 8

Fig. 9

Fig. 10

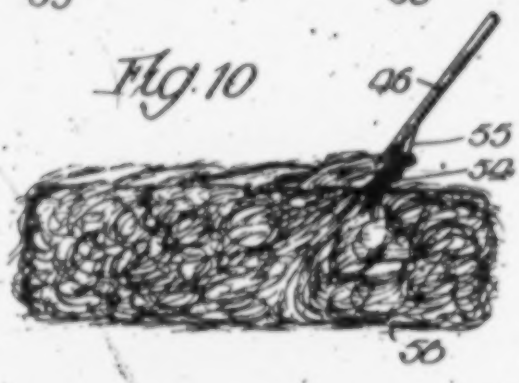


Fig. 11

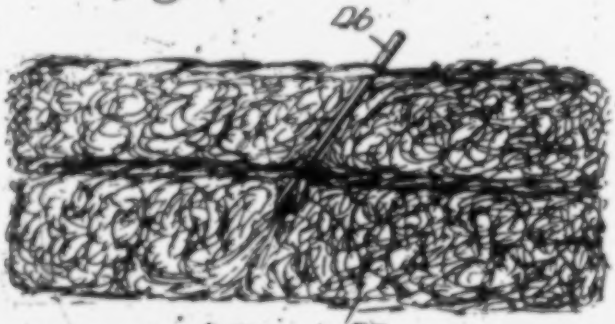


Fig. 13

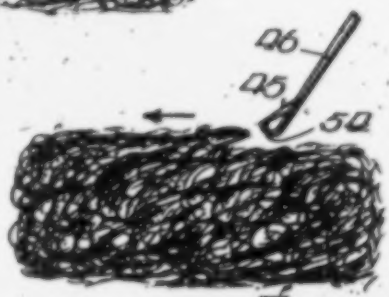
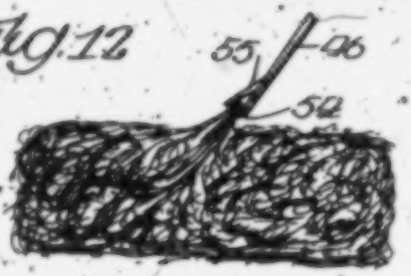


Fig. 12



Inventor

Arthur R. Billington

By J. F. Jochum & Co.

Attys.

UNITED STATES PATENT OFFICE.

ARTHUR R. BILLINGTON, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO EMIL FRANKEL.

METHOD FOR INTERLACING CURLED HORSEHAIR.

1,314,565. Specification of Letters Patent. Patented Sept. 2, 1919.

Application filed April 9, 1917. Serial No. 160,691.

To all whom it may concern:

Be it known that I, ARTHUR R. BILLINGTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Methods for Interlacing Curled Horsehair, of which the following is a specification.

This invention relates to improvements in machines for interlacing curled horsehair and has for one of its objects to provide an improved machine of this character by means of which sheets of fabric of any desired thickness may be rapidly and quickly manufactured.

A further object is to provide improved means for feeding the material across the path of a reciprocating needle, and improved means whereby the feed of the material may be varied, and the relative stroke of the needle may be also adjusted.

A further object is to provide an improved machine of this character, by means of which superposed pads or bats of material may be interlaced.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the invention, and in which:

Figure 1 is a side elevation of an improved machine of this character, constructed in accordance with the principles of this invention.

Fig. 2 is a vertical sectional view taken on line 2—2, Fig. 3.

Fig. 3 is an elevation taken from the right hand end of Fig. 1.

Fig. 4 is an enlarged detail sectional view taken on line 4—4, Fig. 1.

Fig. 5 is a diagrammatic view of one of the feeding rolls and the needle showing the relative positions of the two.

Fig. 6 is a front elevation of a portion of the needle.

Fig. 7 is a side view of Fig. 6.

Figs. 8 to 11 are views showing the different steps in the operation of the needle in interlacing the material.

Figs. 12 and 13 are views showing the different steps in the operation of tufting the fabric.

Referring more particularly to the drawings, the numeral 10 designates generally a supporting structure, which may be of any desired size and configuration and is provided with an upright portion projecting therefrom, and preferably in an inclined position with respect to the main frame.

Mounted to move upon the structure and on opposite sides thereof, are bearing members 12 in which are journaled spaced shafts 13, 14, which extend across the structure and connected respectively with the ends of each of the shafts are gears 15, 16, and an intermediate gear 17 is also mounted upon the bearing members to mesh with the gears 15, 16 to cause them to rotate in the same direction.

The bearing members are supported for vertical adjustment preferably by means of screws 18, one arranged adjacent each end of the machine and which screws are connected as at 19 with the bearing members so that the gears will be held against rotation.

Arranged in any suitable position upon the structure and surrounding each of the screws 18, but held against bodily adjustment are bevel gears 20, each of which meshes with a bevel gear 21 carried by a shaft 22, which extend transversely of the structure. Connected with the shaft 22 on one side of the machine is a gear 23, with which a gear 24 meshes, and to which gear 24 is connected a crank handle 25, and by means of which crank handle, the gear 24 may be rotated which in turn rotates the gear 23 and with it the shaft 22 and the bevel gears 21, the latter in turn rotating the gears 20, so as to feed the screws 18 therethrough, to bodily adjust the bearing members 12 upon the structure.

Mounted respectively above the shafts 13, 14 are similar shafts 26, 27, having secured respectively to the ends thereof, gears 28, 29 which mesh with an intermediate gear 30, to cause the shafts 26, 27 to rotate in the same direction.

Each of the shafts 13, 14, 26, 27, constitute feeding shafts for feeding the bat of material through the machine, and secured to these shafts are rollers, preferably in the form of spaced disks 30, having teeth 31

which project beyond the peripheries thereof, preferably at angles of forty five degrees with respect thereto, and the teeth are adapted to project in a general direction toward the front of the machine, so that when the bat of material is fed between these coöperating rollers, the teeth will engage the material to advance it, and owing to the angle of inclination and the direction of their travel, the teeth will readily disengage the material without pulling any of the material from the bat.

By adjusting the bearings 12, carrying the lower set of rollers with respect to the upper set of rollers, it will be manifest, that the thickness of the bat may be varied.

The lower set of rollers are adapted to be rotated from one of the rollers, and to that end there is provided a ratchet wheel 32 connected with one of the rollers. A pivotally mounted arm 33 is provided with a pawl 34ª adapted to coöperate with the ratchet and the arm 33. To this arm is connected a link 34 preferably by means of a pin and slot connection 35, 36 and this pin and slot connection is adapted to secure the end of the link against adjustment with respect to the arm, while at the same time when the pin is loosened, the link and arm may be relatively adjusted and then fastened.

The other end of the link 34 is connected with a shaft 36, which is journaled in suitable bearings in the inclined extension 11. The connection between the end of the link 34 and the shaft 36 preferably comprises a disk 37, having a shouldered slot 38, opening through the outer face of the disk. A headed pin 39 moves in the slot 38 and is secured by means of a fastening nut 40, so that when it is desired to vary the movement of the arm 33, this may be accomplished by loosening the nut 40 and adjusting the end of the link 34 with respect to the disk 37 and then fastening the parts in their adjusted position, or if desired, the stroke of the arm 33 may be varied by means of the pin and slot connection 35, 36 between the arm and link.

A similar connection comprising a link 41 is provided on the opposite side of the machine for operating the upper set of rolls and to that end, a link 41 is connected with an arm 42 carrying a pawl 43 and which pawl 43 coöperates with a ratchet disk 44 connected for rotation with the shaft 26. Motion may be imparted to the shaft 36 in any desired or suitable manner, but preferably by means of a pulley 45 secured thereto and which pulley receives its motion from any suitable source of power.

The parts are so constructed that the two sets of rollers will operate in unison.

As the material is fed through the machine, it moves across the path of a series of reciprocating needles 46, which latter are connected with a cross head 47 adapted to be reciprocated, and the needles are preferably so arranged that they will reciprocate in a path disposed at an angle with respect to the direction of feeding of the material, so that when the needle withdraws a portion of material partially from the bat, and the bat is advanced with respect to the needle, the strain upon the needle will be longitudinally of the needle and directly in the center thereof and the needle will not be subjected to lateral strain.

This cross head is adapted to move in suitable guides, and is connected with the shaft 36 preferably by means of two eccentrics 48, which are fixed to the shaft for rotation therewith. Another eccentric 49 surrounds the eccentric 48 and is adapted to be secured against relative adjustment with respect to the eccentric 48, preferably by means of fastening screws 50, which pass through the eccentric 49 and engage the eccentric 48. An eccentric strap 51 surrounds the eccentric 49 and is connected as at 52 with the reciprocating head 47 so that when the shaft 36 is rotated, the eccentrics 48, 49 will rotate in the eccentric strap 51 to reciprocate the needles. Obviously the eccentric strap 51 may be provided with openings 53 in alinement with the screws 50 to permit access to the screws.

When is is desired to adjust or vary the degree of reciprocation of the needles, all that is necessary is to loosen the screws 50 to permit relative adjustment of the eccentric 49 with respect to the eccentric 48, after which the screws may be fastened.

The needle 46 is provided with an upwardly opening hook shaped portion 54, and a pivoted shield 55 is provided to extend over the hook so that when the needle passes through or into the material 56, the shield will first open as shown in Fig. 8. When the needle starts to be withdrawn from the material, the shield will close as in Fig. 9, so that after the loop is formed and the needle 46 is withdrawn through the loop, the shield 55 will form a guide for directing the hook end of the needle through the loop to protect the loop of the material.

When it is desired to interlace two bats of material, one of the bats, is superposed upon the other, the lower bat if desired may be first interlaced, and then the operation of interlacing will be the same as with a single bat, with the exception that the needle will penetrate the upper bat and pass into the lower bat or pad and interlace the two together as shown in Fig. 11.

When it is desired to tuft and not interlace, the position of the needle is reversed with respect to the cross head, so that the hook shaped portion will be directed upwardly. In this position when the needle

passes into the material, the shield 55 will open and as the needle is withdrawn, withdrawing a portion of the material partially from the bat, the shield will close and before the needle is again inserted into the bat, the bat will be given an intermittent step of advancement in the direction shown by the arrow in Fig. 13 with respect to the needle, so that as the needle is again lowered, the material will pass off of the hook to permit the hook to enter the material.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, without departing from the spirit of this invention.

It is also to be understood that while this improved machine has been described in connection with the use of horsehair therewith, it is also adapted for efficient operation with any other kind of hair, as well as any fibrous material.

What is claimed as new is:

1. The method of interlacing fibrous material, which consists in feeding a plurality of superposed bats of material across the path of a reciprocatory needle, then reciprocating the needle to cause the same to penetrate the uppermost bat and impale the next adjacent lower bat, and withdraw a portion of the lower bat into the uppermost bat, and to partially withdraw a portion of the uppermost bat to form a loop, then advancing the bat and needle one relatively to the other, then withdrawing a portion of the uppermost bat partially from the supply and through the formed loop.

2. The method of interweaving fibrous material, which consists in feeding a plurality of superposed bats of material across the path of a reciprocating needle, then reciprocating the needle to cause the same to penetrate the uppermost bat and impale the next adjacent lower bat in an inclined position with respect to the plane of feeding movement of the material, and withdraw a portion of the lower bat into the uppermost bat, and to partially withdraw a portion of the uppermost bat to form a loop, then advancing the bat and needle one relatively to the other, then withdrawing a portion of the uppermost bat partially from the supply and through the formed loop.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 5th day of April, A. D. 1917.

ARTHUR R. BILLINGTON.

Witnesses:
R. W. Glasner,
Irma M. Baring.

1061

M. CESKA.

DARNER.

APPLICATION FILED SEPT. 28, 1918.

1,337,884. Patented Apr. 20, 1920.

FIG. 1

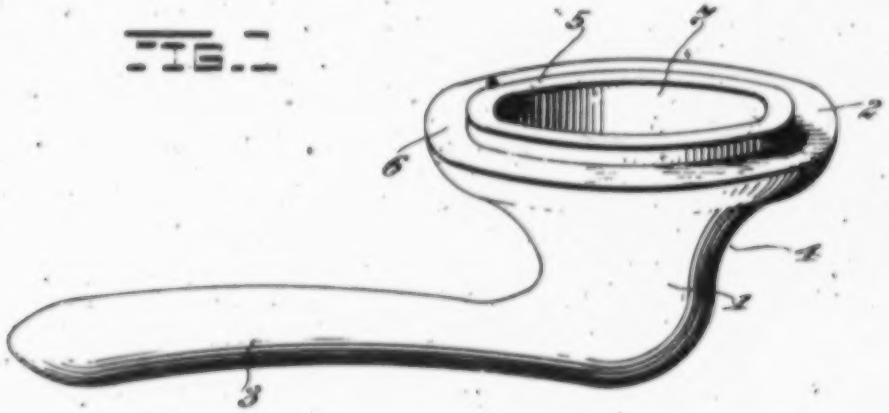
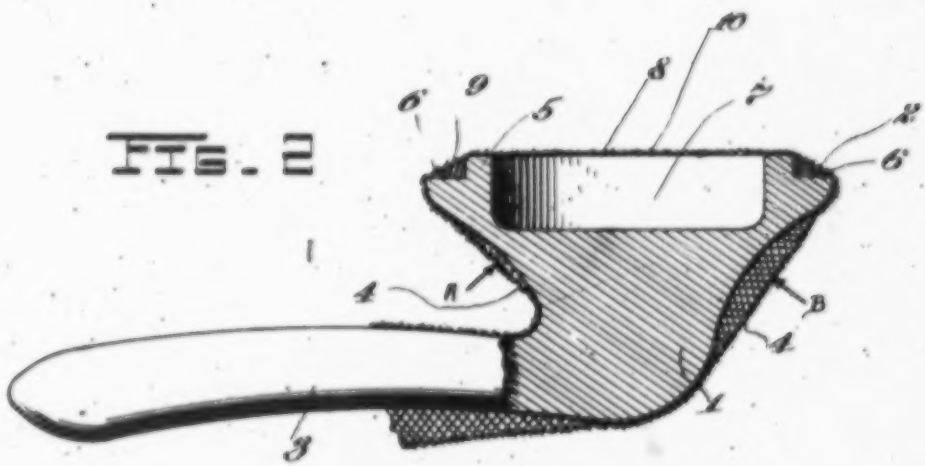


FIG. 2



Witnesses
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Inventor
Marie Ceska
By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

MARIE CESKA, OF BOWDLE, SOUTH DAKOTA.

DARNER.

1,337,884. Specification of Letters Patent. Patented Apr. 20, 1920.

Application filed September 28, 1918. Serial No. 256,070.

To all whom it may concern:

Be it known that I, MARIE CESKA, a citizen of the United States, residing at Bowdle, in the State of South Dakota, have invented new and useful Improvements in Darners, of which the following is a specification.

This invention relates to darners and has for its primary object to provide a darner by means of which material may be more readily darned and in a more efficient manner.

An object of the invention is to provide a darner of such a construction that the material worked upon will not be subject to excessive strains which tend to dislocate or break the strands thereof.

Another object of the invention is to provide a darner that will space different parts of the material worked upon from the darner so that a needle may more effectively work upon the goods without coming in contact with the darner.

Besides the above my invention is distinguished in the manner of associating the body with the handle so that the material or goods may be more readily gripped and stretched across the working face of the darner for obvious reasons.

With these and other objects in view the invention will be better understood from the following detailed description taken in connection with the accompanying drawing wherein:

Figure 1 is a perspective view of the darner.

Fig. 2 is a side elevation partly in section of the darner showing it associated with a piece of material.

At the start I wish to call attention to the fact that the darner may be made of any shape or size, therefore I do not desire to be limited to the exact showing in the drawing which shows the body 1 of the darner provided with a circular flat working face 2. The body is connected to and formed integral with the handle 3 and approximately at the point of juncture of the handle 3 with the body 1, the former is reduced and curved as indicated at 4 for a purpose hereinafter described.

The working face 2 is provided with an upstanding flange 5 which coöperates with a portion of the face 2 to provide a groove 6. The flange 5 encircles a depression or recess 7 in the working face 2. As far as I have proceeded it will be seen that when the material 8 is arranged across the working face 2, different portions 9 and 10 of the material will be spaced from portions of the darner with the result that the darning can be more efficiently accomplished and the point of the needle will not come in contact with the darner. Another very important feature of my invention is the manner in which the material is held so that the needle will not have to travel in an arcuate direction when darning which is the case with the egg shaped darner now on the market. In concluding my description I wish to call attention to the manner in which portions A and B of the material pass across the curved portion 4 of the body, with a result that when the same is gripped by the user, the material will be properly stretched across the working face of the darner and effectively held against displacement during the darning operation.

It is of course to be understood that the darner may be gripped in any suitable manner and one efficient way of gripping the darner is by passing the fingers around that reduced portion of the body 1 next to the handle. When the darner is thus gripped, the handle 3 coöperates with the bell shaped body 1 to effectually prevent slipping of the device from the user's hand, and the handle also provides means whereby the body may be readily inserted into an article to be darned.

From the foregoing description taken in connection with the accompanying drawing it should be apparent that I provide a device of simple substantial construction capable of more efficiently darning material than those devices now on the market.

Having described my invention, what I claim is:

A darner comprising a substantially bell shaped body and a handle secured to said body at the smaller end thereof and disposed substantially at right angles to the body, said body being provided with a central recess in its larger end and having an upstanding flange surrounding said recess, said flange being remote from the periphery of the body and coöperating therewith to space material placed about the body away from same.

In testimony whereof I affix my signature.

MARIE CESKA.

July 3, 1923. 1063 1,461,007

S. E. TAFT

KNITTING NEEDLE

Filed Jan. 29, 1920

Fig. 1.

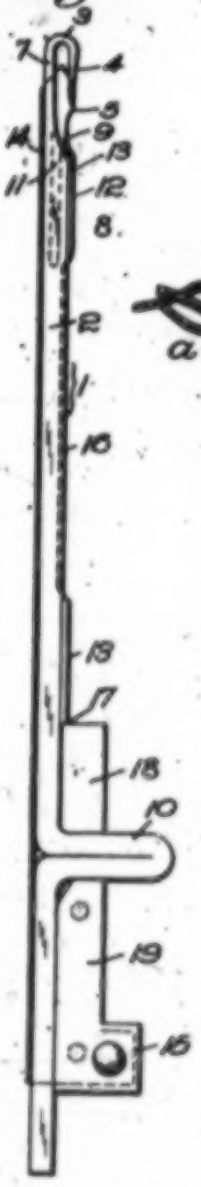

Fig. 4.

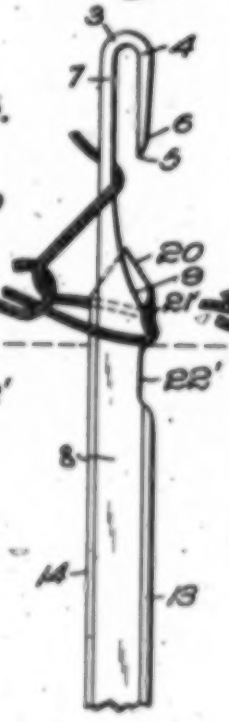

Fig. 3.

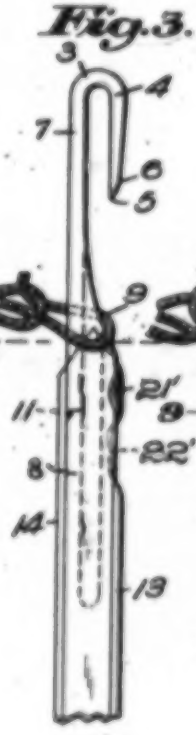

Fig. 5.

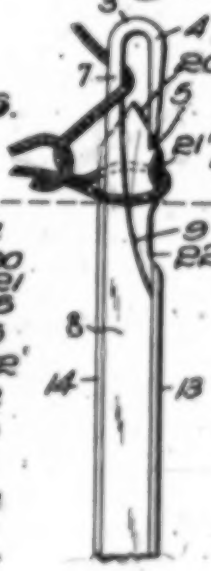

Fig. 6.

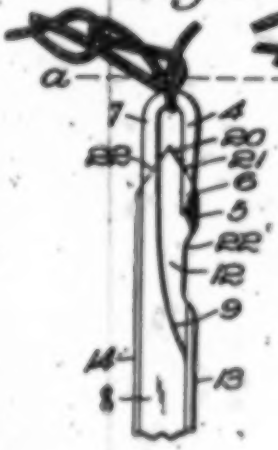

Fig. 2.

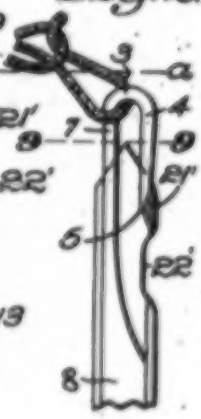

Fig. 7.

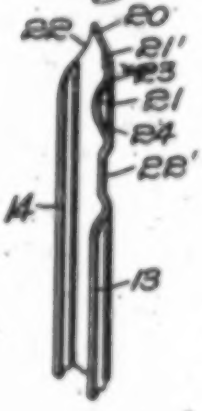

Fig. 8.

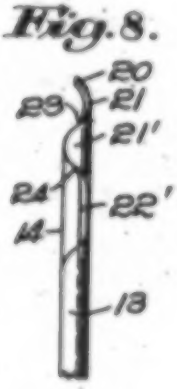

Fig. 9.

Inventor:
Sydney E. Taft.
by Cauny Howtt, Jauny & Hinney
Attys.

Patented July 3, 1923. 1064 1,461,007

UNITED STATES PATENT OFFICE.

SYDNEY E. TAFT, OF FRAMINGHAM, MASSACHUSETTS, ASSIGNOR TO SPARTAN NEEDLE COMPANY, OF PROVIDENCE, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

KNITTING NEEDLE.

Application filed January 28, 1920. Serial No. 354,764.

To all whom it may concern:

Be it known that I, SYDNEY E. TAFT, a citizen of the United States, and a resident of Framingham, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Knitting Needles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to knitting instruments and more particularly to that type of instruments wherein the yarn drawing and loop shedding members have independent movements.

The invention consists of the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims and in the accompanying drawings I have shown merely for illustrative purposes a single embodiment of the invention wherein:—

Fig. 1 is a side elevation of the instrument somewhat enlarged;

Figs. 2 to 6 inclusive are detail views somewhat enlarged illustrating the operative ends of the yarn drawing member and sheath in various positions occupied thereby during the loop forming operations;

Fig. 7 is a detail perspective view of the upper end of the sheath member;

Fig. 8 is a front elevation of the same, and

Fig. 9 is a transverse section taken substantially on the line 9—9 of Fig. 2.

In the drawings 1 is the knitting instrument consisting of a yarn drawing member 2 having at its upper end a suitable hook 3 for engaging the new yarn during the knitting operation and drawing said new yarn through a previously formed loop that is being supported upon the shank of said yarn drawing member in the usual well known manner.

The hook embodying this invention may be constructed in various forms but herein I have provided a hook having a relatively long beard 4 which may or may not be resilient; herein, however, the said beard is shown as relatively nonresilient although it is slightly rounded upon its front edge and tapered substantially from the bend or head to its extremity where it preferably terminates in a point 5. It is desirable for reasons hereinafter explained that the taper of said beard be confined to the outer edge thereof and furthermore that the degree of said taper be increased rather abruptly at the portion 6 near the point 5.

The material composing the hook 3 of the yarn drawing member is considerably reduced in thickness, or extenuated so as to produce a hook, the bend whereof will be large enough to allow the yarn to freely reeve therethrough and yet retain the outside dimension of said bend at least substantially within the dimension of the shank or stem 8 from its front to its rear edges. The reducing of the end of said member 2 results in the formation of the neck 7 which tapers gradually from the large to the smaller dimension and thereby produces an inclined edge 9 a short distance beneath the point 5 of said beard.

A butt 10 is provided upon the shank 8 of said yarn drawing member and constitutes means whereby said member may be functioned during knitting. The yarn drawing member 2 is further provided with a groove 11 extending longitudinally of a portion of one side of its shank, as shown in dotted lines Fig. 1 and in full lines Fig. 9. This groove extends a substantial distance from the inclined edge 9 downward in the direction of the butt 10 and its purpose will hereinafter appear.

Cooperating with the yarn drawing member is a member 12 herein designated as a sheath, the principal function whereof is to enter the loop supported upon the shank of the knitting instrument and to spread or otherwise manipulate said loop so as to permit the yarn drawing member with its newly received yarn to be drawn therethrough for the purpose of forming a new loop, but during such operation it is desirable that the spreading of the loop be reduced to a minimum so that the yarn comprising said loop will not be unduly stretched or its normal elasticity or strength be impaired and furthermore so that there will be as little rendering of yarn from one loop to another as possible when knitting is being produced upon a series of the instruments.

To best accomplish the above results the sheath, or at least that portion of said sheath that is used as a loop entering element, is arranged in slidable engagement with one side only of the yarn drawing or hooked member 2 and herein against that side containing the groove 11. The term "side" is

herein used to designate the faces of the members 2 lying parallel with the plane of the hook.

The sheath 12 may vary in length although preferably it extends substantially the length of the yarn drawing member 2 so as to provide a better support for the latter members particularly where the instrument is to be placed in grooves of a needle carrier or cylinder.

It is not essential that the entire sheath be arranged at one side only of the member 2 although such an arrangement is preferable as it makes the total thickness of the member 2 and the sheath 12 uniform throughout the length of the instrument hence providing lateral support for all parts thereof, the grooves in the needle cylinder being substantially equal in width to the total thickness of said instrument.

As one function of said sheath is to enter the loop supported by the knitting instrument, it is desirable that the two members constituting said instrument be given from time to time relative sliding movements and that during said sliding movements said members be properly guided one upon the other. For this purpose means are provided which herein consist of outstanding portions or ribs 13 and 14 at the front and rear edges respectively of said sheath, which ribs engage the corresponding front and rear edges of the shank 8 of the yarn drawing member 2.

The rib 14 extends substantially the entire length of the sheath, but the front rib 13 terminates at a point 17 considerably above the butt 10 principally for the purpose of producing a gap 16 to expose the front edge of the shank 8 whereby, when said instrument is used in a knitting machine, the usual spring bands may be employed to provide the necessary friction between the said instrument and the bottom of the groove in said cylinder and also to retain said member 2 against the rear rib 14, the purpose of the latter function being hereinafter more fully explained.

The terminating of said rib 13 at the point indicated also provides a gap 18 through which the butt 10 of said yarn drawing member may protrude so as to permit action thereon by its functioning means. Below the range of movement of said butt the rib 13 is supplemented by a filler block 19 which constitutes a guide for the lower end of the shank 8. Furthermore the block 19 is of considerable depth being substantially coextensive with the portion of the sheath to which the block is attached; said coextensive portions extending to the face of the needle cylinder, thus to provide a continuous surface for engagement with the knitting cams of the machine.

The relative sliding movements of the members 2 and 12 may be produced in various ways and it is not imperative that they be given positive independent movement. Herein, however, I have elected to provide the member 12 with an independent operating butt 15 constituting for convenience an extension of the filler block 19, and this butt 15 and the butt 10 of the yarn drawing member are adapted at the proper times to be acted upon and thus positively function their respective members.

As previously stated one function of the sheath is to enter the old loop supported by the yarn drawing member and in order that said sheath may be made to enter such a loop, the upper end thereof is reduced in size, preferably pointed at 20 herein by tapering or bevelling the end of said sheath at 21 and 22 on the front and rear portions thereof so as to position the apex or point 20 substantially midway of the front and rear edges of the sheath or at such a location that said point will lie between the neck 7 and the beard 4 of the hooked yarn drawing member. In addition to being pointed the upper end of said sheath is slightly inturned as shown most clearly in Figs. 7 and 8 and the inturned point so formed is arranged to move lengthwise in the hereinbefore described groove 11 of said yarn drawing member, during the knitting operations.

A second and very important function of the sheath 12 is to guard or cover the point 5 of the hook in order to effect the shedding of the old loop and in the present example this function is effected by forming upon said sheath, point guarding means as shown at 21′ constituting a part of the outstanding flange 13 at the front edge of the sheath. The member 21′ is separated from the body or the main portion of said flange by a recess 22′ which is extended laterally of the sheath member slightly beyond the inner face of the outstanding portion 13 and constitutes a throat for said sheath wherein the old loop during the knitting operation may rest and be separated by the point guard 21′ from the new yarn which is fed to the needle during the knitting operation when the hooked end of the yarn drawing member and the loop entering point 20 of said sheath are separated as shown in Fig. 4.

As clearly shown in Figs. 7 and 8 the point guarding member 21′ is especially formed, or in other words all corners are rounded and the upper and lower edges 23 and 24 are sharply inclined so as to facilitate the riding of the loop or yarn over said member in either direction during the reciprocations of said sheath, said point guarding member being substantially the equivalent of the spoon employed in the ordinary latch knitting needle. It will be seen by referring to Fig. 9 that the guard 21′ is slightly rounded or curved at 27 to effect a

substantial conformance of said guard with the rounded and tapered beard 4 of the hook 3 and also to provide a smooth and not too abrupt hump over which the old loop may ride when sufficient pressure is exerted thereon. It will also be evident that by curving said guard as shown the beard of the hook when covered or protected thereby will be less likely to become deflected or misplaced with respect to said guard by reason of the recess formed thereby and within which the point or beard of said hook will rest during the loop shedding operations.

In Figs. 2 to 6 inclusive the knitting instrument is shown in various positions indicating certain steps of the loop forming operation these positions being shown in relation to the knitting plane indicated by the line *a*—*a*. In Fig. 2 the two members namely the yarn drawing member 2 and the sheath 12 are indicated as occupying positions wherein the old loop has just been shed from the hook and the knitted web is shown supported upon the neck of said hook. Fig. 3 illustrates the two members of the knitting instrument separated so as to bring the inclined surface 9 of the yarn drawing member just above the corresponding inclined portion of the sheath 12 or in other words this inclined surface 9 on the hook member is arranged just above the lowermost point of travel of the loop entering element of the sheath 12 and cooperates therewith to perform the next or loop entering step in the operation. With the members in these positions they having previously been moved thereto by means of the butts 10 and 15, the instrument is in a position to be raised with respect to the line *a*—*a* so as to cause the loop entering point 20 to enter the loop shown supported by the shank of the needle, preferably at one side and substantially midway of the throat and the supported or closed end thereof. At this time said loop entering point is resting in the slot or groove 11 and by being inturned as described, said point will be buried beneath the edges 25 and 26 upon opposite sides of said groove (see Fig. 9) and thereby all danger of said point striking the side of said loop will be removed. As said knitting instrument continues to rise, the inclined surface 21 of the sheath will have a tendency to spread the loop and at the same time effect a progressive wiping action from the point of engagement thereof toward the supported end of the loop, or in the natural direction of elongation of said loop, and thereby tend to prevent elongation or strain of that portion of the loop that is so susceptible to such strains in the ordinary method of knitting namely that part which directly engages the front portion of the shank of the needle. The joint movement of the sheath and hooked yarn drawing member upward continues until the loop supported by the shank of the yarn drawing member has reached the throat 22 of the sheath as shown in Fig. 4 which indicates this step in the operation and at this time a new yarn is laid across the neck of the hook beneath the beard thereof.

The next step in the knitting operation consists in relatively moving the members 2 and 12 until the point 5 of the beard is fully covered by the guard 21′ but to insure said point passing inside of the guard 21′ rather than outside, or rather than striking upon the upper edge of said guard, the engaging portions are relatively bevelled. For example the beard in the present instance is tapered upon its outer edge as previously described and should the beard accidentally or otherwise be bent slightly outward the abruptly inclined portion 6, by engaging the upper edge of said guard, will be deflected inwardly to its normal position within said guard.

To still further insure the passing of said point 5 inside of the guard 21′ the rib 13 has been cut away as hereinbefore stated to form the gap 16 through which the spring bands of the knitting machine, not shown, may engage directly against the front edges of the shanks 8 of the yarn drawing members and cause them to remain pressed firmly against the rear rib 14.

Following the last mentioned operations the yarn drawing and sheath members are moved simultaneously to a lower position causing the loop that up to now has been resting in the throat below said guard to be released therefrom and shed or cast off over the hook and the yarn contained therein, thereby forming a new loop as will be seen in Fig. 6.

As a natural consequence of arranging the sheath member at one side only of the hooked yarn drawing member and in constructing said sheath of very thin material, little, if any, stretch will be produced in a loop during the insertion of the loop entering portion of said sheath and in the subsequent shedding of the said loop over the end of the hook.

Within the scope and purpose of the invention the instrument herein shown and described may be used either in crocheting or in knitting by hand, or said instrument is equally adapted for use in various types of knitting machines wherein the butts 10 and 15 will be functioned automatically by suitable knitting cams and for purposes of the present application the term knitting should be understood as including various constructions such as crocheting, knitting or the like.

While I have herein shown and described merely for illustrative purposes one specific embodiment of my invention and have dis-

closed and discussed in detail the construction and arrangement incidental to such disclosure, it is to be distinctly understood that the invention is limited neither to the mere details or relative arrangement of the parts nor to the specific application herein shown, but that extensive variations from the illustrations may be made without departing from the principles thereof.

Claims:

1. A knitting instrument comprising a yarn drawing member and a sheath having a loop entering element arranged at one side of said yarn drawing member substantially midway between the edges of said sheath.

2. A knitting instrument comprising a yarn drawing member and a sheath having a loop entering element arranged at one side only of said yarn drawing member intermediate the edges of said sheath.

3. A knitting instrument comprising relatively slidable hooked yarn drawing and sheath members, said sheath member having a pointed loop entering element located at one side only of said yarn drawing member and between the neck and beard of the hook of said latter member.

4. A knitting instrument comprising a yarn drawing member and a sheath having an inturned loop entering point arranged to move longitudinally and at one side of said yarn drawing member.

5. A knitting instrument comprising a yarn drawing member grooved along one side below the neck thereof and a sheath having an inturned tapered loop entering element arranged with its apex substantially intermediate the front and rear edges of said sheath to move in the groove of said yarn drawing member.

6. A knitting instrument comprising a grooved yarn drawing member and a sheath arranged at one side of said yarn drawing member having guiding portions at the front and rear edges thereof, the end of said sheath being bevelled at its front and back edges to form a point for cooperating with the groove of said yarn drawing member to enter a loop.

7. A knitting instrument comprising a grooved yarn drawing member, and a sheath arranged at one side of said yarn drawing member having outstanding guiding portions at the front and rear edges thereof, the end of said sheath being bevelled at its front and back edges to form a point for cooperating with said yarn drawing member to enter a loop and means including a part of the outstanding portion at the front edge of said sheath to effect the shedding of a loop from said yarn drawing member.

8. A knitting instrument comprising a hooked yarn drawing member and a one-sided sheath member having a loop entering element arranged to enter the loops supported by said yarn drawing member at the side and intermediate the throat and the supported end of said loop.

9. A knitting instrument comprising a hooked yarn drawing member and a sheath member having a loop entering element arranged to enter the loop supported by said yarn drawing member at one side only and intermediate the throat and the supported end of said loop.

10. A knitting instrument comprising a hooked yarn drawing member having a groove extending longitudinally of one side of its stem, a sheath arranged to slide upon the grooved side of said hooked member and having an inturned loop entering element to move lengthwise in said groove and means on said hooked member to cooperate with said groove in effecting the entrance of said element in a loop.

11. A knitting instrument comprising a hooked yarn drawing member having a groove extending longitudinally of one side of its stem, a sheath arranged to slide upon the grooved side of said hooked member and having an inturned loop entering element to move lengthwise in said groove and means including an inclined edge on said hooked member to cooperate with said groove in effecting the entrance of said element into a loop.

12. A knitting instrument comprising a hooked yarn drawing member having a groove extending longitudinally of one side of its stem, a sheath arranged to slide upon the grooved side of said hooked member and having an inturned loop entering element to move lengthwise in said groove and means including an inclined edge on said hooked member adjacent to the lowermost point of travel of said loop entering element to cooperate with said element in effecting the entrance thereof into a loop.

13. A knitting instrument comprising a hooked yarn drawing member having a groove extending longitudinally of one side of its stem from the neck of said yarn drawing member downward, a sheath arranged to slide upon the grooved side of said hooked member and having an inturned loop entering element to move lengthwise in said groove and means including an inclined edge on said hooked member above the lowermost point of travel of said loop entering element to cooperate with said element in effecting the entrance thereof into a loop.

14. A knitting instrument comprising a hooked yarn drawing member, a sheath arranged to slide upon one side of said hooked member, a loop entering point formed upon said sheath at said side of said hooked member and intermediate its front

and rear edges and a hook point guard on said sheath to effect the shedding of a loop over the hook of said hooked member.

15. A knitting instrument comprising a hooked yarn drawing member, a sheath arranged to slide upon one side of said hooked member, a loop entering point formed upon said sheath intermediate its front and rear edges and a hook point guard at the front edge of said sheath to effect the shedding of a loop over the hook of said hooked member.

16. A knitting instrument comprising a hooked yarn drawing member having a groove at one side thereof, a sheath arranged to slide upon the grooved side of said hooked member, an inturned loop entering element on said sheath to move in the groove of said hooked member during its loop entering operations and means at the front edge of said sheath to separate the new yarn from the old loop during the loop forming operation.

17. A knitting instrument comprising a hooked yarn drawing member having a groove at one side thereof, a sheath arranged to slide upon the grooved side of said hooked member, an inturned loop entering element on said sheath to move in the groove of said hooked member during its loop entering operations and means extending from said sheath across the front edge of said yarn drawing member to separate the new yarn from the old loop during the loop forming operation.

18. A knitting instrument comprising a hooked yarn drawing member having a groove at one side thereof, a sheath arranged to slide upon the grooved side of said hooked member, an inturned loop entering element on said sheath to move in the groove of said hooked member during its loop entering operations and means extending from said sheath across the front edge of said yarn drawing member to separate the new yarn from the old loop during the loop forming operation and to cover the hook of said yarn drawing member to effect the shedding of said old loop.

19. A knitting instrument comprising a hooked yarn drawing member having a groove at one side thereof, a sheath arranged to slide upon the grooved side of said hooked member, a loop entering element formed at the end of said sheath to move in said groove during the loop entering operations, and outstanding guide members at opposite sides of said sheath to extend across the front and rear edges of said hooked member, a portion of the front outstanding guide member being separated from the main portion thereof by a recess constituting a throat to receive the old loop supported by said instrument and to separate said loop from the new yarn during the loop forming operation.

20. A knitting instrument comprising a hooked yarn drawing member having a groove at one side thereof, a sheath arranged to slide upon the grooved side of said hooked member, a loop entering element formed at the end of said sheath to move in said groove during the loop entering operations, and outstanding guide members at opposite sides of said sheath to extend across the front and rear edges of said hooked member, a portion of the front outstanding guide member being separated from the main portion thereof by a recess constituting a throat to receive the old loop supported by said instrument and to separate said loop from the new yarn during the loop forming operation, said separated portion also constituting a guard to cover the point of the hook of said yarn drawing member during the loop shedding operation.

21. A knitting instrument comprising the yarn drawing member 2 having a hook 3, and the sheath member 12 provided with the loop entering element 20 arranged to first enter the loop at a point at the side between the neck and beard of the hook.

22. In a knitting instrument the grooved hook member 2 and the relatively movable sheath member 3 having a loop entering element 20 adapted to first enter the loop at the side of said hooked member to move in said groove and a point guard 21′ at the front of said hook member.

23. In a knitting instrument the hooked yarn drawing member 2 and the pointed loop entering element 20 arranged to effect the initial loop entering function at one side of the hooked member between the neck and beard thereof.

24. A knitting instrument comprising a hooked yarn drawing member and a sheath member relatively slidable longitudinally of said yarn drawing member adapted to effect the initial entering of the loop at one side only of said hooked yarn drawing member.

25. A knitting instrument comprising a hooked yarn drawing member and a pointed sheath member relatively slidable longitudinally of and upon said yarn drawing member having its point adapted to effect the initial entering of the loop upon said yarn drawing member at one side only of said loop.

In testimony whereof, I have signed my name to this specification.

SYDNEY E. TAFT.

May 5, 1925. 1,536,274

O. C. SEMONSEN

HOOK FOR MENDING RUNS

Filed June 27, 1923

Fig. 1.

Fig. 2.

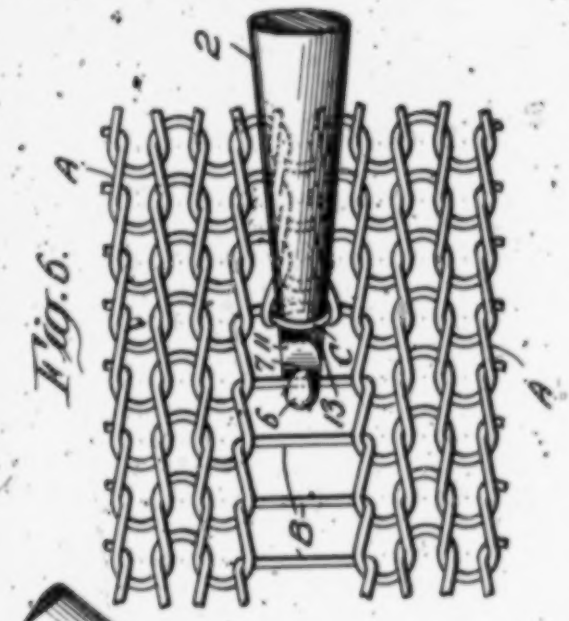

Fig. 6.

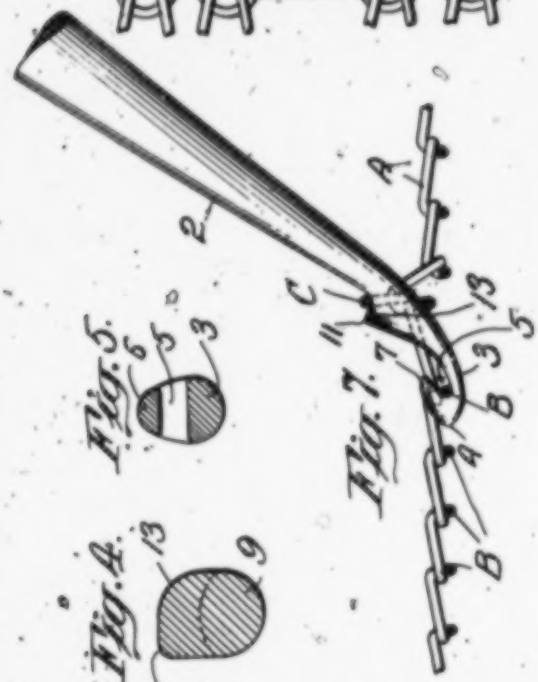

Fig. 7.

Fig. 5.

Fig. 4.

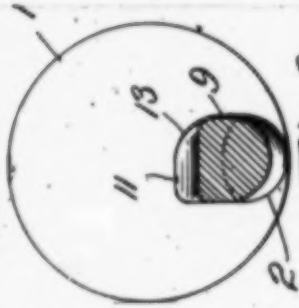

Fig. 3.

INVENTOR
Otto C. Semonsen
BY Alfred Lockwood
ATTORNEY

UNITED STATES PATENT OFFICE.

OTTO C. SEMONSEN, OF BROOKLYN, NEW YORK.

HOOK FOR MENDING RUNS.

Application filed June 27, 1923. Serial No. 648,107.

To all whom it may concern:

Be it known that I, OTTO C. SEMONSEN, a citizen of the United States, and resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in a Hook for Mending Runs, of which the following is a specification.

My invention relates more particularly to a needle hook so designed and constructed that runs or ladders in stockings or other knitted fabrics may be readily repaired by restoring the dropped loops, thereby restoring the original appearance of the fabric. It is well known that in knitted fabrics, and particularly in silk stockings, a broken thread starts a run, which if not immediately stopped, will spoil the stocking. The usual way of repairing a run of this character is by sewing with a needle and thread, which means an unsightly seam and obviously does not improve the appearance of the fabric, nor give satisfactory results.

Naturally, the ideal way of repairing a run of this character is to completely restore the knitted fabric to substantially its original condition by taking up and restoring the dropped loops. This can be and has been done after a fashion by manufacturers who employ specially trained help, but so far as I am aware, no one has attempted to follow my method and provide a special needle, which can be easily and readily operated by anyone without special training; thus giving individuals the advantage of being able to readily repair runs in their own stockings or hosiery.

The object, therefore, of my improved needle is to enable anyone, after a little practice, to carry out my method of restoring runs in knitted fabric, by using my improved run-needle for picking up the bottom loop of the run and thereafter, by means of the needle, rapidly reknit the dropped loops and thus restore the fabric to its original appearance.

One form of my improved hook for mending runs in knitted fabrics is shown in the accompanying drawings, together with an illustration of the method of its use; all of the drawings showing the needle and its parts on an enlarged scale. Fig. 1 shows a side elevation of the needle hook; Fig. 2 is a plan view thereof; Fig. 3 is a section on the line 3—3 of Fig. 1, looking in the direction of the arrows; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a section on the line 5—5 of Fig. 2, the section being taken at right angles to the plane of the undercut; Fig. 6 is a plan view, representing a portion of knitted fabric, having a run therein with my improved needle hook in position to start the operation of restoring the run, and Fig. 7 is a side view of the needle, as shown in Fig. 6, with the fabric threads in section.

Referring to the drawings, it will be seen that the needle comprises a cylindrical rod 1, the end of which is tapered conically at 2, the taper being mainly on one side of the axis of the cylinder, so that the underside of the tapered portion of the needle, as seen in Fig. 1 of the drawings, is substantially in line with the cylindrical surface of the rod or needle. This permits the hook to be formed at the end of the tapered portion within the limits of the cylindrical needle and substantially on the axis thereof.

The hook end of my improved needle is constructed and shaped with particular care and it will be seen that the needle, as shown in Fig. 1, is provided with an upturned curve 3 at the hook end thereof, which swings upwardly transversely of the needle. This throws the extreme point 4 of the needle above the axis or, at least, above the point of the hook. The end of the needle back of the point 4 is undercut at 5, so as to form the hook, the undercut, as clearly shown in Fig. 1, being in a plane at an angle to the axis of the needle, so that the point of the hook is directed downward. The upper surface 6 of the overhanging hook, while being rounded, is substantially parallel with the undercut, so that the point of the needle lies below the outer point 4 of the needle. This is clearly illustrated in Figs. 1 and 7 of the drawings. The overhanging hook 6 of the needle is provided with a tapering rounded point 7, which, as will be seen in Fig. 2 of the drawings, lies to one side of a vertical plane through the axis of the needle. This is accomplished by cutting away the side 8 of the hook more than the opposite side therefrom, substantially as clearly indicated in Fig. 2 of the drawings. This throws the point 7 of the hook to one side of the center so that it lies in a plane at an angle to the axis of the needle.

The neck at the curve 3 on the hook is substantially of uniform thickness, until it passes beyond the point 7 of the hook, then it begins to thicken, as shown at 9, which is substantially the point represented by the section in Fig. 3 of the drawings. A section of the neck 3 and hook 6 is represented in Fig. 5 of the drawings, and the relative thickness of the neck at the two points referred to can readily be observed by comparing the two cross sections. The surface 10, back of the open end of the hook 7, continues to rise at an angle to the axis of the needle, to form a shoulder at 11, where it drops down to the conical shank 2, forming a notch or shoulder hook at 12, the shoulder notch being substantially at right angles to the axis of the needle. As clearly shown in Figs. 2 and 4, one corner, 13, of the shoulder 11 is rounded off, so that when a loop is engaged upon the shoulder-notch and rests in the notch 12, as shown in Fig. 6, it may be readily released therefrom by turning the needle counter-clockwise, the loop sliding over the rounded corner 13 of the shoulder.

The method of using my improved run hook or needle is more particularly illustrated in Figs. 6 and 7 of the drawings, in which the loops properly knitted, are represented at A, while the ladder or run is represented at B. The free loop at the bottom of the run is represented at C, and, as shown in the drawings, is engaged by the shoulder notch 11—12. Prior to inserting the run-needle in the fabric, the latter should be stretched and held tightly during the operation of restoring the dropped loops of the run. It is not only important that the fabric at the run should be stretched tightly but it should be held so that the needle can be inserted through the fabric. It is also desirable that the fabric should be stretched above a background of contrasting color so that the loops and ladder threads stand out with clearness. A suitable holder for this purpose is more particularly described in my companion application, Serial No. 648,108, filed June 27, 1923.

After the run needle or hook has been inserted in the free loop C, and the needle pushed through until the loop engages or drops back of the shoulder notch 11—12, the hook end 7 is then brought into engagement with the first dropped loop or ladder thread B, as indicated in Figs. 6 and 7 of the drawings. The needle is then drawn upward in an axial direction away from the fabric and simultaneously therewith, is rotated toward the left about its axis; this latter movement having the effect of releasing the loop C, temporarily engaged by the shoulder notch 11—12. The rounded corner 13, of the shoulder notch permits the loop to readily slide off the shoulder. When the needle is turned to this position, the point of the hook 7 lies considerably below the edges of the neck over which the released loop C is adapted to slide and since the point 7 is below a plane passing through the point 4 and through the top of the shoulder 11, the released loop C will readily slide over the hook 6—7 without being engaged by the latter. The thread B, held in the notch 5 of the hook can then be drawn through the released loop C to form a new loop. The new loop then corresponds to original loop C and the needle is again thrust into the fabric, under the next dropped loop thread B, until the new loop C passes above the shoulder 11—12 where it is temporarily held while the hook 6—7 is brought into engagement with the next ladder thread B, and the operation is repeated.

It will be understood that while I have shown and described my improved run needle with the left corner 13 of the shoulder notch 11—12 rounded off and the hook 6—7 pointing toward the left or in the direction of the rounded corner of the shoulder notch, thus requiring the needle, when operated, to be rotated toward the left or counter-clockwise, in order to release the temporarily retained loop from the shoulder notch; my improved needle can be constructed to operate by rotation in the opposite direction by properly reversing the position of the point of the hook 7 and the rounding of the corner 13 of the shoulder notch. The needle here shown, however, is more particularly adapted for use with the right hand and it is more natural to rotate the needle toward the left.

I have given a great deal of thought and study to the construction and operation of a needle of this character and have constructed and tried out a large number of designs and modifications and while the one herein shown and described represents the preferred form, it will be understood that I do not wish to be limited to the specific details of construction, or the particular mode of operation shown and described, for I am aware that various modifications in the arrangement of the elements of the needle, their shape and degree of curvature and thickness may be made without departing from the spirit and scope of the invention.

I claim:—

1. The method of restoring a run in knitted fabric, which comprises taking a needle, having an undercut hook at the lower end and a shoulder above said hook for temporarily holding the loop, inserting said needle in the free loop at the lower end of the run, temporarily holding said loop upon said shoulder, while picking up the thread of the adjacent dropped loop by means of said hook, then drawing said hook outward and simultaneously turning it to release the

loop from said shoulder, said loop sliding off over said hook, then drawing the thread on said hook through said loop, thereby forming a new loop, then temporarily holding said new loop on said shoulder and repeating the operation.

2. A needle for restoring runs in knitted fabric, provided with an undercut hook at the lower end thereof, and a shoulder notch spaced from and located above the opening of said hook for temporarily holding a loop, said hook being adapted for picking up the thread of the adjacent dropped loop so that it may be drawn through the loop temporarily held on said shoulder.

3. A needle, as claimed in claim 2, in which one corner of said shoulder notch is rounded off, so as to permit the ready release of a loop temporarily held thereby, when the needle is turned on its axis approximately 180°.

4. A needle as claimed in claim 2, in which the hook at the end thereof is undercut at an angle to the axis of the needle, and the point thereof is rounded and points in a direction at an angle to a plane through the axis of the needle.

5. A needle for restoring runs in knitted fabrics, provided with a hook at the end thereof, the neck of said hook being curved upward, so that the extreme point of the needle is directed away from the axis of said needle, said hook being given a recessed undercut in a plane at an angle to the axis of the needle so as to provide an over-hang of the hook extending toward the axis of the needle at an angle thereto, the point of said overhanging hook being rounded and offset so as to lie outside of and point in a direction at an angle to an axial plane through the neck.

6. A needle as claimed in claim 5, which is provided with a shoulder notch, back of the neck of said hook, for temporarily holding a loop, said shoulder notch being so shaped and proportioned as to readily release said loop when the needle is turned through an angle of approximately 180°.

7. As an article of manufacture, a needle for restoring runs in knitted fabrics, provided with a shoulder notch for temporarily holding a loop of the fabric, and a hook located in front of said shoulder notch for engaging the thread of the dropped loop, said shoulder notch and the hook being so shaped and proportioned that by turning the needle said thread may be drawn through the loop and the latter released from said shoulder.

8. As an article of manufacture, a needle for restoring runs in knitted fabric, provided with a hook at the end thereof and a shoulder notch adjacent and spaced from said hook, said hook and the shoulder notch being so shaped that a loop temporarily held by said shoulder notch may be released therefrom and pass over said hook while said hook draws a thread engaged thereby through said loop to form a new loop, the release of the temporarily held loop being effected by rotating the needle.

9. A needle as claimed in claim 8 in which the point of the hook is located below a plane passing through the point of the needle and through the upper edge of said shoulder notch and lies to one side of a plane through the axis at right angles to said plane.

OTTO C. SEMONSEN.

May 5, 1925. 1,536,275

O. C. SEMONSEN

HOLDER FOR KNITTED FABRICS

Filed June 27, 1923

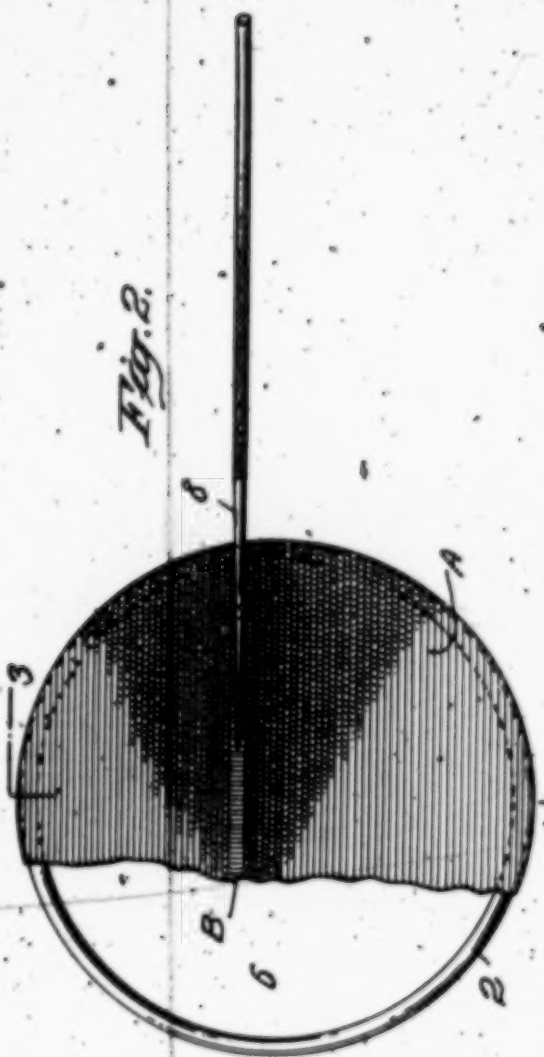

Fig. 2.

Fig. 1.

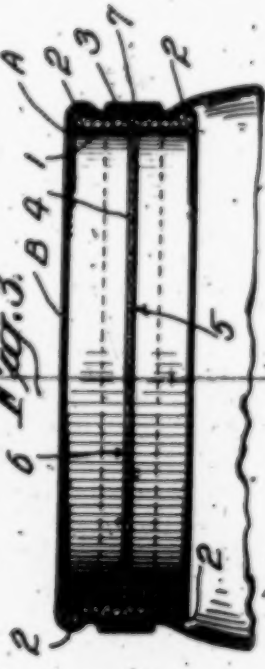

Fig. 3.

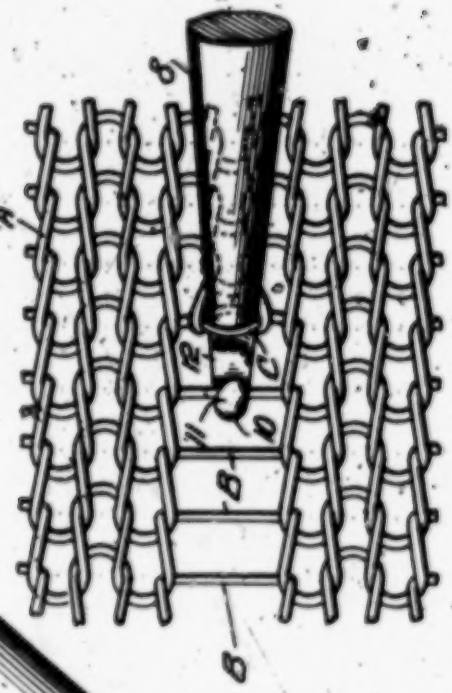

Fig. 4.

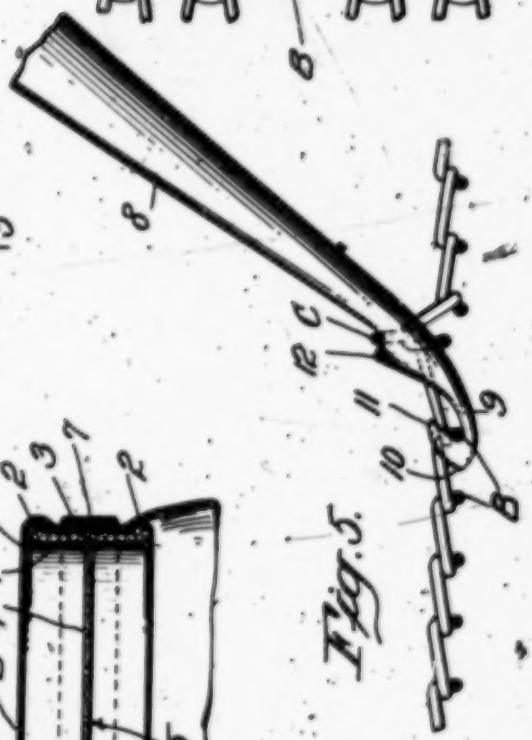

Fig. 5.

INVENTOR
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ATTORNEY.

Patented May 5, 1925. 1074 1,536,275

UNITED STATES PATENT OFFICE.

OTTO C. SEMONSEN, OF BROOKLYN, NEW YORK.

HOLDER FOR KNITTED FABRICS.

Application filed June 27, 1923. Serial No. 648,106.

To all whom it may concern:

Be it known that I, OTTO C. SEMONSEN, a citizen of the United States, and resident of Brooklyn, county of Kings and State of New York, have invented certain new and useful Improvements in a Holder for Knitted Fabrics, of which the following is a specification.

My invention relates more particularly to a ring or other suitable device, over which knitted fabric may be stretched and to which it may be secured in stretched condition, so that it may be readily operated upon with my improved run needle, to restore a ladder or run, and thus restore the fabric to its original condition and appearance.

One object of my improved holder is to provide means for more particularly holding knitted fabric tightly stretched so as to stretch the run and means for securing the fabric to the holder in stretched condition, the arrangement being such that the degree of stretching may be modified while the holding device is in position.

In restoring runs in knitted fabrics, such as silk stockings, wherein the knitted threads are extremely fine, it is difficult to distinguish the individual loops and threads unless the fabric is tightly stretched and the visibility of the threads and loops is increased by placing a disc of contrasting color back of or under the stretched portion of the fabric, which is to be operated upon. Therefore, a further object of my improved holder is to provide a disc or diaphragm spaced from the fabric supporting means of the holder over which the fabric is stretched, so as to permit working space for the needle between the fabric and the disc. Preferably opposite faces of the disc are made of different colors, one being light and the other dark, so as to offer a contrast with light and dark colors of fabrics. Obviously, when in use, a light colored fabric will be stretched over the holder, so that the dark face of the disc is below the fabric, while with a dark colored fabric, the opposite or light colored face of the disc will be below the fabric.

One form of my improved holder for holding knitted fabric tightly stretched while operating with my improved run needle, is shown in the accompanying drawings, together with an enlarged view of the end of the needle, operating on a run or ladder in the knitted fabric. Fig. 1 is a plan view of my improved ring or holder with the black or dark face of the disc uppermost; Fig. 2 is a plan view of the ring with the light colored face of the disc uppermost, the fabric being indicated as stretched thereover and partially broken away; Fig. 3 shows a transverse section of the ring or holder and the fabric, the section being taken on the line 3—3 of Fig. 2; Fig. 4 is a plan view of the fabric and needle enlarged to show the method of restoring the run; and Fig. 5 is a side view of the needle and fabric, as shown in Fig. 4, the fabric and threads being shown in section.

Referring to the drawings, it will be seen that my improved holder comprises a cylindrical ring 1 provided with annular beads 2, at each end thereof, the beads forming flanges projecting outwardly, as shown in Fig. 3 of the drawings. It will be understood that the cylindrical ring, including the annular flanges or beads, may be made of metal or any suitable sheet material, in which case the beads are rolled in the usual manner, but preferably, the ring or holder may be molded from any suitable plastic material, such as celluloid, bakelite, or hard rubber. When the ring holder is formed, it is preferably provided with an annular groove 3, located on the inner wall of the cylindrical portion of the ring, about midway between the ends thereof. A disc 4, preferably of opaque material, is inserted in the annular groove 3, so as to form a back ground for fabric stretched over either end of the ring or holder. One face, 5, of the disc is preferably black or dark colored to contrast with light colored knitted fabric when the latter is stretched over the lower end of the ring or holder as shown in Fig. 3, or the upper end, as shown in Fig. 1, the latter view showing the dark colored surface 5 of the disc 4. The upper surface 6, as shown in Figs. 2 and 3 is preferably white or light colored to contrast with black or dark colored knitted fabric, when the latter is stretched over the upper end of the ring, as shown in Figs. 2 and 3.

The fabric A is preferably stretched tightly over the end of the ring or holder 1, substantially as indicated in Figs. 2 and 3 of the drawings, and is adapted to be securely held in stretched position by suitable means gripping the fabric between the beads 2. In the present instance, I have utilized an elastic band 7 for this purpose. The

elastic or resilient gripping band has the advantage that the fabric can be drawn down over the bead 2, under the gripping band, while the latter is in place, thus enabling the operator to quickly adjust the fabric and obtain the desired tension thereon, the tension being maintained by the gripping action of the elastic band against the cylindrical walls of the ring. It is more particularly desirable that the fabric should be stretched tightly, both longitudinally and transversely of the line of the run or ladder, so as to maintain the dropped loop threads taut during the operation of restoring the loops by means of my improved run needle, which is more particularly described in my companion application, filed of even date herewith.

After the fabric has been properly stretched over the appropriate end of the holder or ring, and tightly held in position by means of the elastic band 7, the fabric with the run therein will have the appearance substantially as shown in Figs. 2 to 5 of the drawings. In Figs. 4 and 5, the loops and threads of the fabric are shown enlarged, the regularly knitted loops being shown at A, while the dropped threads of the ladder or run are shown at B. By reference to my companion case, above referred to, it will be seen that my improved run needle is provided with a conically tapered end 8, the lower end of which, at 9, curves around transversely of the axis to the point 10 of the needle. Back of the point 10, the end of the needle is undercut to form an overhanging hook 11, adapted to engage the ladder or run threads B, substantially as indicated in Figs 4 and 5 of the drawings. Back of or above the hook 11, it will be seen that a shoulder notch 12 is formed, which is adapted to engage the last dropped loop C of the run or ladder, when the operation of restoring the run is started. After the needle is inserted in the last dropped loop C, the hook 11 is made to engage the nearest adjacent thread B of the ladder or dropped loops, as indicated in Figs. 4 and 5 of the drawings, and thereafter by drawing the needle outward and turning it toward the left, the loop C will slide off the end of the needle, while the thread B, engaged by the hook 11 can be drawn through the loop C to form a new loop. The new loop thus formed is retained on the hook 11 and then forced over the shoulder 12 by pushing the needle downward into the fabric; after which the operation may be repeated until the run is entirely restored.

In my improved holder, it will be seen that the disc 4 is located below the fabric stretched across the ends of the holder and spaced therefrom a sufficient distance, so as not to interfere with the insertion of the needle through the fabric as is required when operating the needle to restore the run. As previously stated, if the knitted fabric is of light color, the dark face of the disc should be uppermost, while if the knitted fabric is of dark color, the light face of the disc should be uppermost.

While I have shown one form of my improved holder arranged and constructed substantially as shown and described, it will be understood that I do not wish to be limited to the particular construction shown, for obviously, various modifications may be made in the form and arrangement of the elements for properly stretching the fabric and holding it in stretched relation to a disc or diaphragm of a color contrasting with that of the fabric, and various modifications in the details of construction may be made without departing from the spirit and scope of the invention.

I claim:—

1. A holder for holding knitted fabric in position to be operated upon by a [illegible] needle for restoring runs in the fabric, which comprises a frame over which the fabric is stretched, means for securing and holding the fabric in stretched relation over said frame, and a diaphragm of contrasting colors spaced from and located below the plane of the fabric stretched over said frame.

2. A holder for holding knitted fabric while repairing a run therein, which comprises a reversible open-ended holder, over the ends of which the fabric may be stretched, means for securing the stretched fabric to the holder, and a disc located between and spaced from the ends of said holder, said disc being of different colors on the two sides thereof to contrast with the color of the fabric.

3. As an article of manufacture, a holder for holding knitted fabric, comprising a molded cylindrical ring, provided with outwardly projecting beads at each end thereof and an annular groove in its inner wall about midway the ends, and an opaque disc secured within said groove and transversely of the axis of said ring, said disc being light colored on one side and dark colored on the other, whereby the fabric may be stretched on one end or the other of said cylindrical ring to contrast with the color of the disc.

4. The holder as claimed in claim 3, in which an elastic band is mounted between said beads ends for gripping and holding the fabric in stretched relation over either end of said cylindrical ring.

OTTO C. SEMONSEN.

POOR PRINT

N° 24,311 A.D. 1893

NOV 27 1894

Date of Application, 18th Dec., 1893

Complete Specification Left, 10th Sept., 1894—Accepted, 13th Oct., 1894

PROVISIONAL SPECIFICATION.

Improvements in Latch Knitting Needles Used in Hosiery Knitting Machines and other similar Knitting Machines.

We ALFRED LEE of 24 Brussels Terrace Banbury Street in the Town of Nottingham Hosiery Machinist and FREDERICK WILLIAM PARE of 20 Waterloo Road in the said Town Lace Manufacturer do hereby declare the nature of this invention to be as follows:—

The object of this invention is to secure the automatic re-opening or falling back of the latch of latch needles used in hosiery and other similar knitting machines after the latch has been closed by the passage behind it in the process of knitting of the loop upon the needle or by other means. To effect this we employ a light steel or other spring working upon the base of the latch in the slit wherein the latch is pivoted to allow of its rise and fall. This spring is so fixed at the back of the slit and the base of the latch so shaped that the base of the latch is throughout part of its circuit in the slit upon the pivot when rising and falling pressed upon by the spring in such a way that after closure by pressure the latch is—so soon as the pressure is removed—forced downwards away from the hook.

One or more springs may be employed and adjusted in various ways but preferably only one spring occupying the whole or nearly the whole length of the back of the slit above and below the level of the pivot is employed.

Dated this Sixteenth day of December 1893.

ALFRED LEE.
FREDERICK WILLIAM PARE.

POOR PRINT

COMPLETE SPECIFICATION.

Improvements in Latch Knitting Needles Used in Hosiery Knitting Machines and other similar Knitting Machines.

ALFRED LEE 24 Brussels Terrace, Banbury Street Nottingham, Hosiery Machinist and FREDERICK WILLIAM PARE 20 Waterloo Road, Nottingham Lace Manufacturer do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in knitting machine needles of the kind known as "latch needles" and which are used in machines making stockings, pants vests, similar knitted articles and other knitted fabrics, the improved needles being particularly applicable to knitting machines which are designed to automatically throw an article off the needles at the completion of the same, and to machines in which the number of needles in action is increased during the manufacture of the article or fabric. These needles may however be used in all knitting machines which at present use the ordinary latch needle.

In latch needle knitting machines, and warp knitting machines the needles as at present constructed have a pivoted tongue or latch which is designed to close the hook and imprison the thread just fed to it by the movement of the existing loop up the needle during the process of "knocking over," while the new loop which has been formed by the above process opens the hook for the reception of the thread as

it moves down the needle. These needles are however more or less defective when at work, inasmuch as the latch, which is loosely pivoted, is liable to rebound and close the hook after it has been opened by the descent of the newly formed loop, and when used in machines which automatically throw off the completed article or fabric, it is evident that the loops as they are "knocked over" must close the hooks, and that the same must be opened again before work can be made. To overcome these difficulties all latch needle knitting machines with which we are acquainted are fitted with brushes or other mechanisms technically known as "latch openers." These latch openers traverse across the machine in advance of the thread carrier and open any closed hooks thus ensuring all the needles taking the thread, and if additional needles are brought into action, it is also necessary to adopt some means for the same reason.

Now the object of this invention is the construction of a latch knitting needle which may be used in any latch needle knitting machine without any auxillary latch opener, and so constructed that the latch will open the hook automatically after a loop has been "knocked over" the same, and is prevented from closing the hook by rebounding when the newly formed loop descends below the same, and the needle will when brought into a position to receive a thread, always have an open hook.

The object of this invention is accomplished by fitting the needle with a suitable spring which is placed in the needle behind the latch and in the slit within which the latch is pivoted. According to one method of carrying out this invention the latch is made with a cam like projection above the pivot on which it turns. This projection acts upon the spring whenever the latch is by any means moved into a position for closing the hook, and the spring will react upon the latch and open the hook immediately the force acting on the latch is removed.

According to another method the latch is of the ordinary shape and pivoted in the usual manner while the spring is bent to act upon it above the pivot, the action of the latch being the same in both cases.

The spring used is preferably supported or fixed at both ends, but it may be fixed at one end only as most convenient, but in no case should the spring project out beyond the back of the needles.

This invention is illustrated by the accompanying sheet of drawings which show various ways of carrying out the same, and these drawings are referred to in the following detailed description.

Fig. 1. is a sectional elevation of a needle fitted with a spring which is supported or fixed at both ends and in which the latch with a cam like projection is shown closed.

Fig. 2. is a sectional elevation of the needle shown in Fig. 1 with the latch open.

Fig. 3. is a sectional elevation of a needle fitted with a spring which is supported at both ends, and bent to act upon an ordinary shaped latch.

Fig. 4 is a front elevation of a needle.

Figs. 5 and 6 are sectional elevation of needles each fitted with a spring which is supported or fixed at one end and in which the latch has a cam like projection.

Figs. 7 and 8 are sectional elevations of needles fitted with springs which are supported or fixed at one end and bent to act upon an ordinary shaped latch.

The needle used by preference is shown in Figs. 1. 2. and 4, and its general outside shape is exactly the same as an ordinary latch needle. It has an ordinary shaped hook a^1 and shank a, this latter being of any desired length, and bent or fitted to jacks or slides according to the construction of the machine in which the needle is to be used. In this needle the latch g is pivoted at h within a slit which extends from b to c, and between the points d and e is cut through to the back of the needle. Within the slit and at the bottom of the same is a spring f suitably tempered, and made from round, square, flat or other shaped wire. This spring is held in position by making it equal in width to the distance between the sides of the slit and then forcing it in the same it may also be further secured

by slightly closing in the sides of the slit at the ends of the same. The spring may also be held in the slit by soldering rivetting, or by passing one end of it through a hole in the needle. The latch *g* has at the back of the same a cam shaped projection *i* which is so designed that before the latch reaches the position shown in Fig. 1 it acts upon the spring and bends it, and the spring immediately the force closing the latch is removed reacts upon the latch, forces it back and thus opens the hook. It will be noticed that during the closing of the latch the spring is bent into the opening *d e* in the back of the needle thus allowing the needle with our improvements added to be of the usual size. In Fig. 2 the same construction of needle is shown as in Fig. 1 and the same parts are marked with the same reference letters. From Fig. 2 it will be seen that the latch is free to turn upwards for a certain distance without acting upon the spring, and that the cam *i* is designed to act upon the spring before the latch can close the hook, thus preventing the latter being closed by the rebounding of the latch.

In Fig. 3 is shown a needle with an ordinarily shaped latch *g*, and with a spring *f* which is bent at *k* to meet the latch before the latter can be closed. This needle the method of constructing the same, and the action of the latch and spring are the same as described with reference to Figs. 1 and 2, except that the projection is on the spring instead of on the latch.

In Figs. 5 and 6 the needle latch has the cam projection *i* as described with reference to the latch shown in Figs. 1 and 2 but the spring in Fig. 5 is fixed at the top, and in Fig. 6 at the bottom of the slit. In Figs. 7 and 8 the springs are fixed at the top and bottom of the slit and are bent to act upon an ordinary shaped latch as described with reference to Fig. 3. In these four arrangements the spring is firmly fixed to prevent end movement of the same and this may be done by any of the methods previously referred to.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A needle for latch needle knitting machines in which a spring is arranged to act upon the latch and during the action of knitting prevent the latch closing the hook except during the passage of a loop over it, as in the process of "knocking over" and also by the rebound of the latch after the newly formed loop has descended below the same.

2. A needle for latch needle knitting machines constructed and arranged as shown in Figs. 1 and 2 and described in the accompanying Specification.

3. A needle for latch needle knitting machines constructed and arranged as shown in Fig. 3 and described in the accompanying Specification.

4. A needle for latch needle knitting machines constructed and arranged as shown in Fig. 5 and described in the accompanying Specification.

5. A needle for latch needle knitting machines constructed and arranged as shown in Fig. 6 and described in the accompanying Specification.

6. A needle for latch needle knitting machines constructed and arranged as shown in Fig. 7 and described in the accompanying Specification.

7. A needle for latch needle knitting machines constructed and arranged as shown in Fig. 8 and described in the accompanying Specification.

Dated this 8th day of September 1894.

W. H. POTTER, Wh.Sc.,
Patent Agent,
Nottingham, Agent for the Applicants.

London: Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1894

SPECIFICATION.

24311 1893

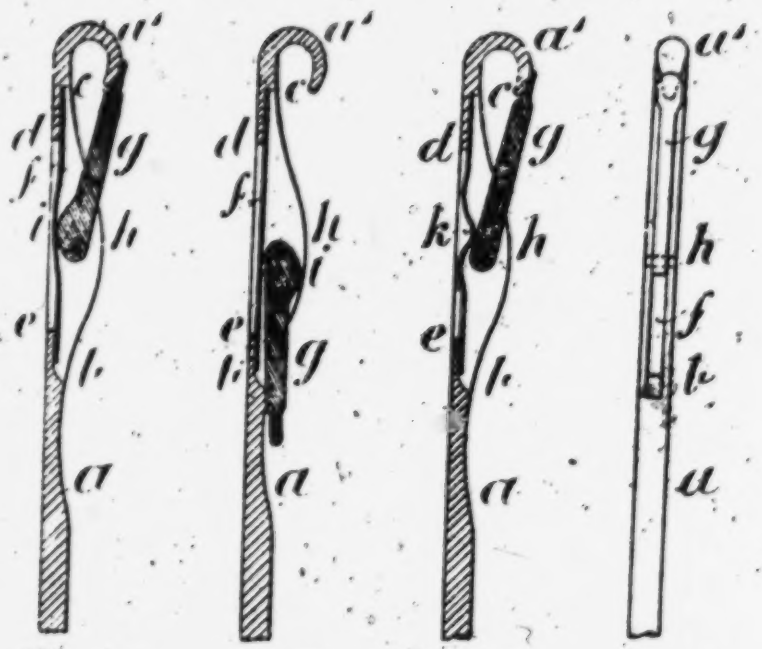


Fig 1 Fig 2 Fig 3 Fig 4

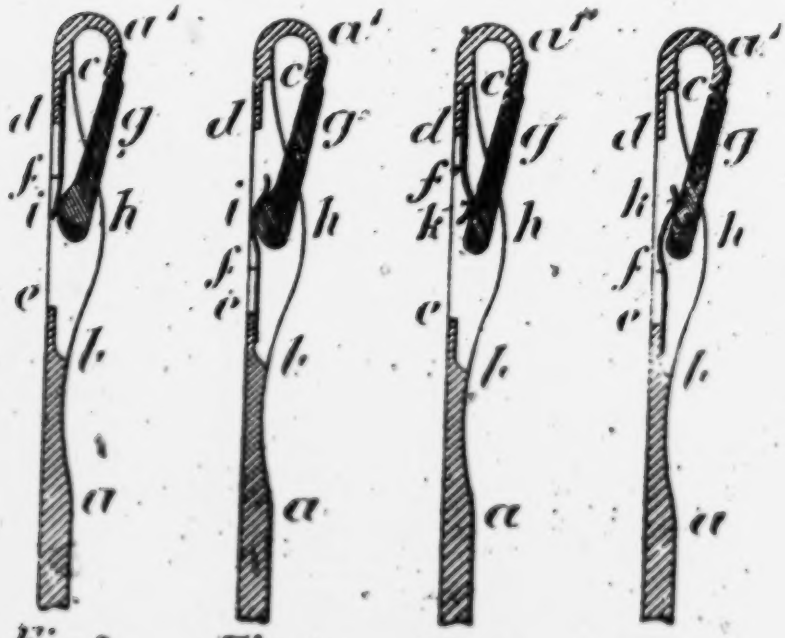


Fig 5 Fig 6 Fig 7 Fig 8

POOR QUALITY

Printed by Eyre and Spottiswoode

N° 19,115 A.D. 1903

Date of Application, 5th Sept., 1903
Complete Specification Left, 23rd Mar., 1904—Accepted, 5th May, 1904

PROVISIONAL SPECIFICATION.

An Improved Needle for use in Making Rugs and Mats by Hand.

We JAMES WALKER, of Brick St. Flanshaw, Wakefield, Commercial Traveller, & OSBORNE PADGET, of Brick St. Flanshaw, Wakefield Mill Manager, do hereby declare the nature of this invention to be as follows:—

A hand latch hook needle with handle, constructed for the making of hearth rugs, door mats &c by hand, to be worked in open & close canvas.

Dated, 3rd day of. September 1903

OSBORNE PADGET.
JAMES WALKER.

COMPLETE SPECIFICATION.

An Improved Needle for use in Making Rugs and Mats by Hand.

We, JAMES WALKER, of Brick Street, Flanshaw, Wakefield, in the County of York, Commercial Traveller, and OSBORNE PADGET, of Brick Street, Flanshaw, Wakefield, Mill Manager, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

This invention relates to an improved needle for use in making rugs and mats by hand, such needle comprising essentially a hand latch hook with handle, and being adapted to be worked in open and close canvas.

Our said invention is illustrated in the accompanying drawing, Figure 1 showing the appliance in the position taken up during its insertion into the canvas, and Figure 2 showing the same during its withdrawal from the canvas after having laid hold of the wool.

A is the needle or hook, which is screwed or otherwise fixed in a suitable handle such as B, and is provided with a small latch or finger C, pivotted at D and working within a slot formed in the body of the needle. This latch or finger C is hollowed out at its outer extremity *e* in such a manner as to enclose and protect the point *a* of the needle or hook A (as shown in Fig. 2) during its withdrawal from the canvas, and is adapted to turn back against the body of the needle (as shown in Fig. 1) during the insertion of the needle into the canvas. By this means the manufacture of the rug or mat is greatly facili-

[Price 8d.]

tated and accelerated, there being no possibility of the needle catching or fouling during its insertion into or withdrawal from the canvas. Our improved needle is adapted also to take the double ends of the wool and serves therefore as a means of knotting the wool after the same has been drawn through the canvas.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

The improved needle for use in making rugs and mats by hand, constructed arranged and operating substantially as described herein with reference to the accompanying drawing.

Dated this 22nd day of March, 1904.

For the Applicants:
JOHN E. WALSH,
Royal Exchange Chambers, Leeds;
Chartered Patent Agent.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1904.

FIG. 1.

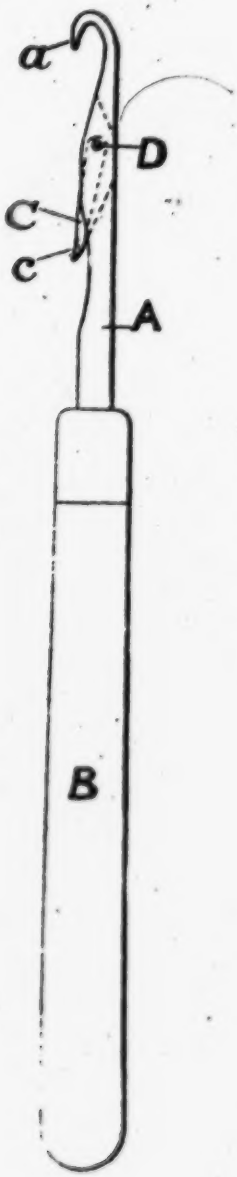
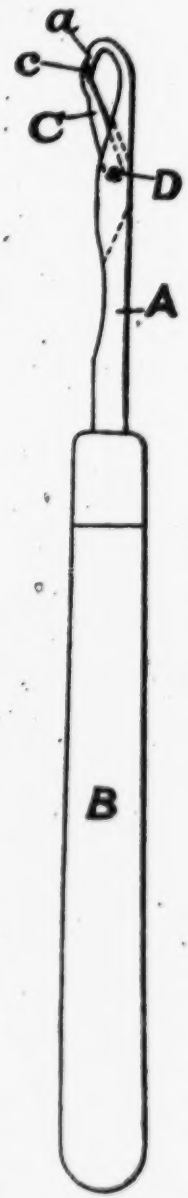


FIG. 2.



[This Drawing is a full-size reproduction of the Original.]

Malby & Sons, Photo-Litho

1083

PATENT SPECIFICATION

Application Date: Jan. 18, 1921. No. 2476/21. **168,817**

Complete Left: Feb. 3, 1921.

Complete Accepted: Sept. 15, 1921.

PROVISIONAL SPECIFICATION.

Improved Method of Repairing Knitted Goods.

I, JOHN WALL POGSON, 262, Duke Street, Dennistoun, Glasgow, British subject, do hereby declare the nature of this invention to be as follows:—

This invention has reference to methods of repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

With goods of the above kind it frequently happens that the thread or yarn breaks in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article when repaired presents an unsatisfactory appearance and is of little further use. The object of this invention is to provide an improved method of repairing knitted articles in which "ladders" have formed, whereby the appearance of a perfectly knitted article is produced.

The method, according to this invention, consists in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as by a piece of thread of yarn corresponding to the article.

A means for carrying out the method comprises a "latch" needle, such as used on a knitting machine. The needle is preferably secured in a handle and provided with a removable cap.

Dated this 17th day of January, 1921.

H. D. FITZPATRICK & Co.,
Chartered Patent Agents,
94, Hope Street, Glasgow.

COMPLETE SPECIFICATION.

Improved Method of Repairing Knitted Goods.

I, JOHN WALL POGSON, 262, Duke Street, Dennistoun, Glasgow, British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has reference to methods of repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

Goods of the above kind frequently have the thread or yarn broken in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article, when repaired, presents an unsatisfactory appearance and is of little further use.

The object of this invention is to provide an improved method of repairing knitted articles in which "ladders" have been formed, whereby the appearance of a perfectly knitted article is produced.

According to this invention, the method consists in looping or knitting each portion of the thread or yarn form-

[*Price* 1*s.*]

ing the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as, by a piece of thread or yarn corresponding to the article.

A means for carrying out the method comprises a "latch" knitting needle, of the size and design as used in knitting machines, secured in a handle and provided with a removable damp proof cap.

Referring to the accompanying drawings, Fig. 1 illustrates a piece of knitted fabric with a "ladder", Fig. 2 a suitably mounted form of latch needle for repairing such "ladder", and Figs. 3 to 8 inclusive illustrate a method of proceeding for effecting a repair of a "ladder" in a knitted fabric, under this invention.

The means illustrated in Fig. 2 comprises a knitting needle *a* with a hinged latch *b*. The needle is secured in a handle *c* and the latter is fitted with a removable protective cover *d* adapted to enclose the needle *a* and keep it free from damp and dirt.

One manner of using the needle for repairing a "ladder" *e* shown in a piece of knitted fabric in Fig. 1, is illustrated in the series of views Figs. 3 to 8 inclusive. In Fig. 3 the needle *a* with the latch in the open position is in engagement with a loop *f* formed thereby in the bottom piece of thread or yarn f^1. The needle thus engaged is then moved to the position shown in Fig. 4 to enable the forward hook end to be directed towards the adjacent piece of thread or yarn *g* under which the hook is passed as shewn in Fig. 5 and moved forwardly until the latch *b* passes the loop *f*. The direction of movement of the needle *a* is then reversed with the result that the latch is moved to the closed position by contact with the loop *f* and the piece of thread or yarn *g* is enclosed between the hook and the latch and passed under the loop *f* and formed into a loop g^1 as shewn in Fig. 7. In passing the loop g^1 under the loop *f*, the latter passes out of engagement with the needle and the latter is then free to be moved forwardly over the loop *f* for engagement with a piece of thread or yarn *h* as shewn in Fig. 8. Upon the hook being engaged with the piece of thread or yarn *h*, the loop passes beyond the end of the latch and a reversal of the direction of movement of the needle again closes the latch against the hook owing to the contact of the former with the loop g^1, and the loop thus formed in the piece of thread or yarn *h* is drawn under the loop g^1 and the latter disengaged from the needle. By such a series of operations with each piece of thread or yarn in the ladder, each piece is looped or knitted with the adjacent piece and the whole of the damaged or imperfect part is repaired or made perfect. When the final loop has been made a piece of thread or yarn, preferably similar to that of the damaged or imperfect knitted fabric, is passed under the loop and into engagement with the margin of the damaged portion and knotted. The introduction of the piece of thread or yarn for tying the last loop may be effected by a sewing needle or by means of the latch needle, as will be obvious.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A method of repairing knitted goods in which the thread or yarn is broken with the consequent formation of a "ladder", consisting in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the adjacent portion of the knitted fabric by a piece of thread or yarn, substantially as set forth.

2. Means for repairing knitted goods according to Claim 1, comprising a latch knitting needle of the size and design as used in knitting machines mounted in a handle and provided with a removable damp proof protective casing.

Dated this 2nd day of February, 1921.

H. D. FITZPATRICK & Co.,
Chartered Patent Agents,
94, Hope Street, Glasgow.

Abingdon: Printed for His Majesty's Stationery Office, by Burgess & Son.
[Wt. 51A.—25/8/1929.]

168,817 COMPLETE SPECIFICATION 1 SHEET

2nd Edition

[This Drawing is a reproduction of the Original on a reduced scale.]

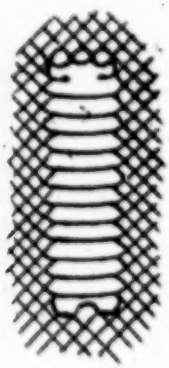


Fig. 1.

Fig. 2.

Fig. 3.

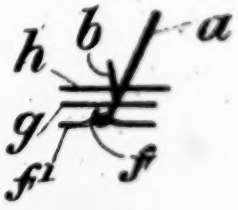


Fig. 4.

Fig. 5.

Fig. 6.

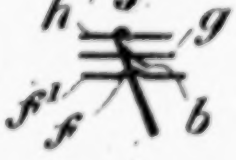
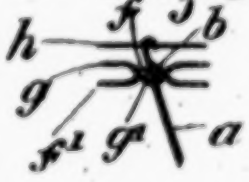


Fig. 7.

Fig. 8.



Charles & Read Ltd. Photo Litho.

PATENT SPECIFICATION

Application Date: Feb. 21, 1921. No. 5805/21.
" " June 2, 1921. No. 15,325/21.
One Complete Specification Left: June 14, 1921.
Complete Accepted: May 23, 1922.

180,730

PROVISIONAL SPECIFICATION.

No. 5805, A.D. 1921.

Improvements in Needles for Repairing Knitted Fabrics.

I, JOSE MARCEL ORTEGA, of 38, Craven Hill Gardens, London, W. 2, British subject, do hereby declare the nature of this invention to be as follows:—

The needle is made of steel, aluminium or the like, comprises a turned up and pointed hook at end of a shank, at 1/8 of an inch from the hook a groove is let into the main shank from which projects a moveable arm having a convex head and small upturned point and which is made to fit on to hook, the said arm has a backward and forward movement.

The main shank of the needle is let into a brass, aluminium or other metallic holder and is affixed by pressing, soldering, brazing or the like, and is provided with a sheath of metal or other substance which covering the needle fits firmly over the holder.

Dated the 19th day of February, 1921.

J. M. ORTEGA.

PROVISIONAL SPECIFICATION.

No. 15,325, A.D. 1921.

Improvements in Needles for Repairing Knitted Fabrics.

I, JOSE MARCEL ORTEGA, a British subject, of 38, Craven Hill Gardens, London, W. 2, do hereby declare the nature of this invention to be as follows:—

This invention relates to means of repairing faults in knitted fabric known as "ladders" which result from the breaking of a loop in one of the courses causing it to release the loop it secured in the previous course, which released loop in turn releases the corresponding loop in the course before it, and thus causes successive loops to be dropped in consequence of which the defect referred to passes down the fabric, and it is the object of the present invention to provide means whereby each of these dropped loops may be picked up and secured by the loop in the course above which dropped it until the last loop has been picked up and secured by means of a needle and thread or any other suitable known means.

In order to serve this purpose I provide a hook made of steel or other suitable material to engage the successive loops and a pivoted latch having a concave end adapted to cover said hook when the loop is being pulled through the previous one. After this has been accomplished the hook and latch are pushed forward completely through the new loop which first opens the latch and then passes over its end. The hook is now withdrawn causing the loop to close the latch whereafter the hook is caused to engage the next loop

ERRATA.

SPECIFICATION No. 180,730.

Page 2, line 99, *for* "break" *read* "beak"
" 3, " 60, *before* "a" *insert* "with"

PATENT OFFICE,
August 14*th*, 1922.

which passes between it and the closed latch so as to be engaged by the said hook. The new loop is now pulled through the last loop and the hook and latch are again pushed forward through the new loop until the latter passes to the other side of the latch whereafter the operation is repeated until all the loops have been picked up.

In order to facilitate the operation the hook is preferably provided with a point or beak in front similar to a crochet hook and the latch is also preferably provided with a point or beak at its free end so as to form a V-shaped opening between them when the latch is closed to facilitate the passage of the new loop between them.

The stem of the hook may be slotted at a short distance from the hooked end to receive the pivoted end of the latch.

The improved device is provided with a suitable handle of metal, bone, wood, vulcanite, or other suitable material to enable the user to manipulate it with facility. This handle may be fixed to it as in the case of a crochet hook and provided with a protector; or it may be pivoted to a haft provided with a spring like a pen-knife, so that it may be shut up to protect the hook and latch and carried in the pocket with safety. Or the said device may be mounted in a telescopic holder like a pencil.

Dated this 2nd day of June, 1921.

EDGAR A. GODDIN,
Chartered Patent Agent,
61 & 62, Chancery Lane, London,
W.C. 2,
Agent for the Applicant.

COMPLETE SPECIFICATION.

Improvements in Needles for Repairing Knitted Fabrics.

I, JOSE MARCEL ORTEGA, a British subject, of 38, Craven Hill Gardens, London, W. 2, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to means of repairing faults in stockings and other articles made of knitted fabric, known as "ladders" which result from the breaking of a loop in one of the courses that releases the loop it secured in the previous course, which released loop in turn releases the corresponding loop in the course before it, and thus causes successive loops to be dropped in consequence of which the defect referred to passes down the fabric, and it is the object of the present invention to provide means whereby each of these dropped loops may be picked up and secured by the loop in the course above which dropped it until the last loop has been picked up and secured by means of a needle and thread or any other suitable known means.

In order to serve this purpose I provide a device comprising the hooked end of a machine knitting needle of the kind having an overlapping latch which I fit into a handle. In operation the hook and latch are passed in their closed condition through the last of the dropped loops and the first rung of the ladder is caused to pass between the latch and the hook so as to be engaged by the latter whereafter the said hook is withdrawn through the loop it first engaged carrying with it the first rung which is now reformed into a loop. After this has been accomplished the hook and latch are pushed forward completely through the new loop which first opens the latch and then passes over its end. The hook is now withdrawn causing the loop to close the latch whereafter the hook is caused to engage the next loop which passes between it and the closed latch so as to enter the said hook. The new loop is now pulled through the last loop and the hook and latch are again pushed forward through the new loop until the latter passes to the other side of the latch whereafter the operation is repeated until all the loops have been picked up.

To facilitate the operation, the hook is preferably provided with a point or beak in front similar to a crochet hook and the latch is also preferably provided with a point or break at its free end so as to enable them to be more readily passed between the dropped loops forming the rungs of the ladder but in all cases the beak and latch are such as to form a V-shaped opening between them when the latch is closed to facilitate the passage of the new loop between them.

I will now proceed to more particularly

describe my invention with the aid of the accompanying drawings in which:—

Figs. 1 and 2 illustrate different forms of the improved repairing device on an enlarged scale.

Fig. 3 is a left-hand view of the device shown in Fig. 2 with the latch removed illustrating a detail.

Fig. 4 is a right hand view of the device shown in Fig. 2 also with the latch removed.

Fig. 5 is an inside view of the latch shown in Fig. 2.

Fig. 6 is a longitudinal section showing the improved device fitted with a removable handle adapted to hold the improved device when not in use.

Fig. 7 is an elevation of the device illustrated by Fig. 6 showing the handle reversed so as to serve as a holder, and

Figs. 8 to 12 are diagrammatic views representing a section through a ladder and the next few courses of the knitted fabric, illustrating the mode of using the improved device.

The simplest form of the improved device illustrated by Fig. 1 consists of a stem *a* fitted into a handle *b* and provided with a hook *c* and a pivoted latch *d*. The latch *d* has a concave or spoon-like end *e* adapted to cover the point of the hook and is pivoted on a pin *p* in a slot *h* formed in the stem *a* similar to that shown in Fig. 3.

According to the construction shown in Figs. 2 to 5 the hook *c* is provided with a point *f* at its front end to enable the user to insert the hook between the threads forming the rungs of the ladder to be repaired. The latch *d* is also provided with a point *g* at its free end to facilitate its insertion between the threads and to form a V-shaped opening *x* between it and the point *f* to assist the passage of the next thread of the ladder between it and the hook *c*.

Fig. 2 shows the stem *a* of the device pivoted to a handle *b* provided with a spring and adapted to shut up like a pen-knife.

Instead of providing the device with a fixed or pivoted handle its stem *a* may be fitted into a double ended plug *i* either end of which is adapted to be inserted into a tubular holder *j* which forms either a handle as shown in Fig. 6 or a protector, as shown in Fig. 7 according to which end of the plug is inserted into it.

When the repairing device is provided a removable hollow handle the latter may be adapted to hold spare devices of different size for use on coarser or finer fabric.

In operation the latch *d* is caused to engage the hook *c* in the manner shown by full lines in Figs. 1 and 2 of the drawings and both are passed beneath the last rung 1 of the ladder to be repaired (Fig. 8) which operation is facilitated by the points *f* and *g* (Fig. 2). The hook and latch are now advanced sufficiently to enable the hook to engage the second rung 2 which passes between the latch and the hook until it is engaged by the latter (Fig. 9). This operation is also facilitated by the two points *f* and *g* between which the V-shaped opening *x* is formed. The device is now withdrawn from under the first rung of the ladder (now reformed into a loop) carrying with it the second rung 2 which is also formed into a loop (Fig. 10). The device is next pushed forward through the loop 2 which opens the latch *d* (as shown in Fig. 11) over which it passes. The device is next withdrawn causing the loop to pass under the back of the latch *d* (Fig. 12) so as to restore it to the position shown in Fig. 8. The loop 2 now passes along the back of the latch *d* to within a short distance of its free end. The third rung 3 is now caused to pass between the hook and latch until it is engaged by the hook *c* in the same way as the rung 2 was previously engaged whereafter this third rung is pulled through the last loop 2 which then passes over the end of the latch and the hook. The device is now pushed forward again until the third rung 3, which has now become a loop, causes the latch *d* to assume the position shown in Fig. 11 whereafter the said loop passes over the end of the open latch. The device is now withdrawn again causing the new loop to close the latch and pass toward its front end without passing over it. In this position the fourth rung 4 is caused to pass between the hook and latch until it engages the hook *c* whereafter it is pulled through the last loop formed and the cycle of operations is repeated until all the loops have been picked up and the last one secured in any suitable manner such as by means of an ordinary needle and thread.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A repairing device for stockings and other articles made of knitted fabric comprising a stem provided at one end with a hook to engage the dropped loops corresponding with the rungs of a "ladder",

a pivoted latch having a concave portion at or near its extremity adapted to engage the end of the hook so as to close it in order to retain a dropped thread that has been picked up and to facilitate its withdrawal through the corresponding loop of the preceding course, a V-shaped opening between the adjacent ends of the hook and latch when they are in the closed position to facilitate the passage of a dropped thread between them without opening the latch and a handle fitted to the other end of the stem to enable the said device to be manipulated substantially as described in the specification.

2. A repairing device for stockings and other articles made of knitted fabric, according to Claim 1 characterised by a pivoted latch having a point or beak at its free end substantially as described in the specification.

3. A repairing device for stockings and other articles made of knitted fabric according to Claim 2, characterised by a point or beak at the front of the hook and a point or beak at the free end of the latch to facilitate their passage between the rungs or threads of a "ladder" substantially as described in the specification.

4. The combination and arrangement of parts constituting an improved repairing device for mending the ladders in stockings and other articles made of knitted fabric substantially as described in the specification and shown in the various figures of the drawings.

Dated this 13th day of June, 1921.

EDGAR A. GODDIN,
Chartered Patent Agent,
61 & 62, Chancery Lane, London, W.C. 2,
Agent for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1922.

[This Drawing is a reproduction of the Original on a reduced scale]

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5

Fig. 6.

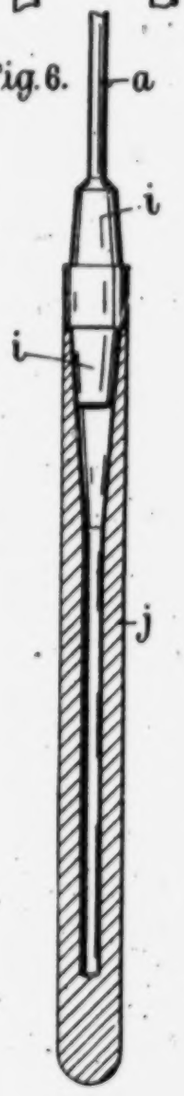


Fig. 7.

SHEET 2

Fig. 8.

Fig. 9.

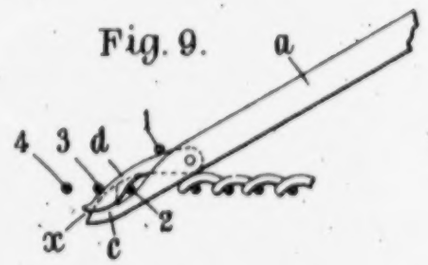


Fig. 10.

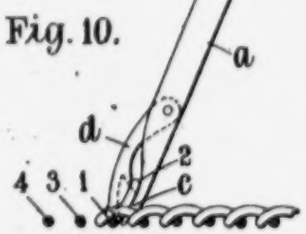


Fig. 11.

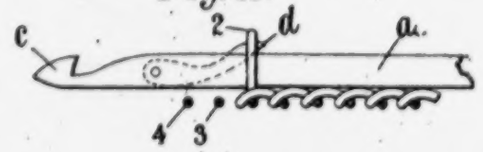
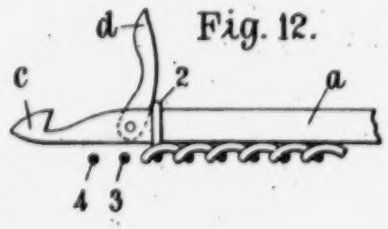


Fig. 12.



Malby & Sons, Photo-Litho

PH. ED. FOUCAR IN CHEMNITZ.

Verfahren und Vorrichtung zum Stopfen von Strümpfen und anderen Maschengebilden.

Fig. 5.

Fig. 6.

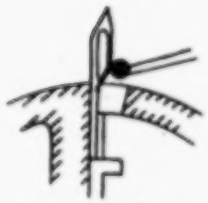


Fig. 3.

Fig. 2.

Fig. 1.

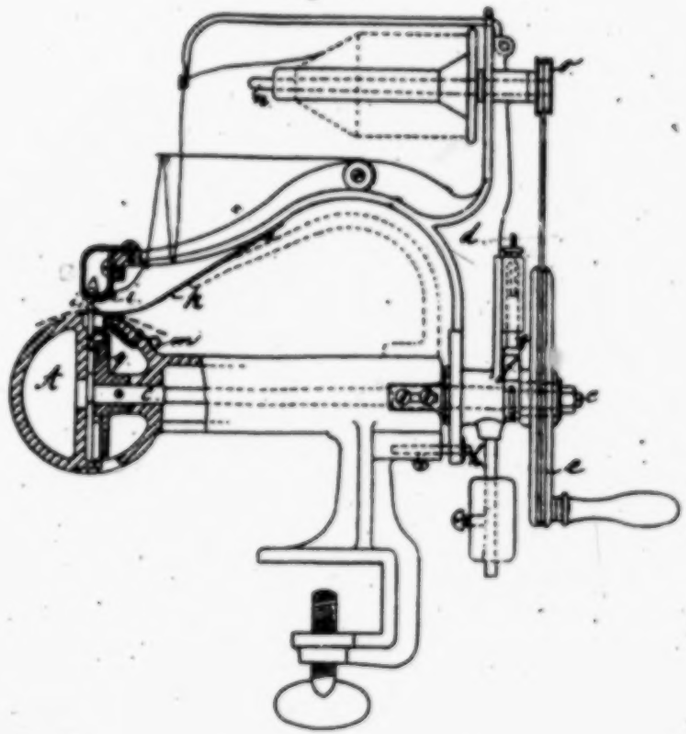


Fig. 4.

Fig. 7.

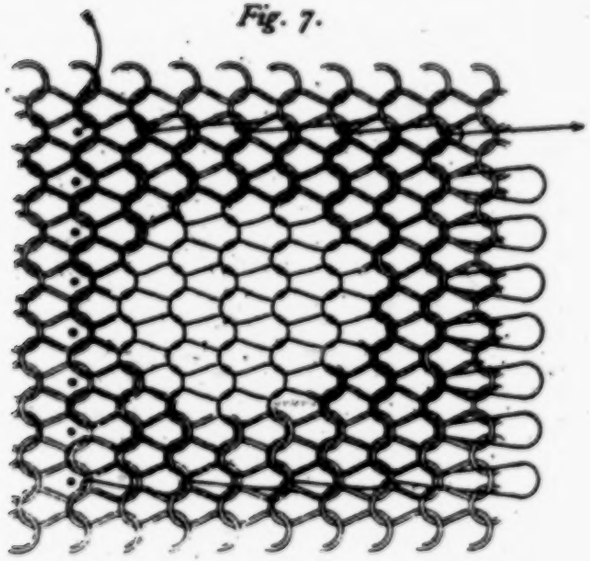
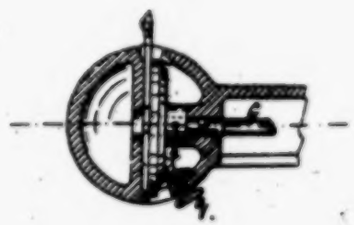


Fig. 8.



Zu der Patentschrift

№ 35795.

PHOTOGR. DRUCK DER REICHSDRUCKEREI.

WASHINGTON, DISTRICT OF COLUMBIA, } ss.: 3277

I, the undersigned, Carl A. Hellmann, being duly sworn, depose and state

That I am a graduate in Electrical Engineering of the University of Illinois and formerly was instructor in Physics at said University, and later, for over ten years, an Assistant Examiner in the United States Patent Office, and that I am a Member of the Bar and Registered Patent Attorney.

That for over twenty one years much of my work has been the study and translation of foreign patents and technical literature, particularly in 3278
the German and French languages, with which I am familiar.

That I have made and verified the attached translation of German Patent No. 25795, granted to Ph. Ed. Foucar, and that the same is a true and correct idiomatic translation thereof.

(Sgd) CARL A. HELLMANN

Sworn to and subscribed before me this twelfth day of January nineteen hundred and thirty one.

(Sgd) CATHARINE S. WILTON
(Notary Seal) Notary Public, D. C. 3279

3280 GERMAN PATENT No. 35795

Ph. Ed. Foucar of Chemnitz.

Patented in Germany September 17, 1885;
Published May 27, 1886.

PROCESS AND DEVICE FOR DARNING STOCKINGS AND OTHER MESH STRUCTURES.

The article to be mended, turned wrong side outward, is inserted in such way in the machine and moved forwardly, that a number of needles, moved
3281 up and down, which produce a coherent mesh (loop) weave, penetrate it each time and in this way draw it through the newly resulting mesh weave, whereby the working width of the needles should always be greater than the hole to be darned, and the needles should always begin their work somewhat in front of the hole, in order to be effective over the entire extent of the same, whereby the hole is closed all around. The securing of the last meshes produced is done in that the same are lengthened by a suitable means and then are inserted through the old mesh structure from the under side and brought upon the outer side (so-called wrong side of the structure).

3282 The machine necessary for carrying out this process comprises the following arrangement:

A two part head at the end of a cylinder (see Fig. 1) provided with a foot, has in its part A, the needle guides together with the needles (whose radial axes or axes intersecting in a point *b*, Fig. 2 lie in a plane) which are pushed out and retracted by a cam disc, Figs. 2 and 3, oscillating forward and back by means of a specially shaped cam groove gripping the noses (lugs) of the

needles, and are removable through the straight groove *p* when the head is closed. The part A may be exchanged for other needle divisions. The cam disc is arranged rigidly upon a shaft *c* which carries upon its rear part of the loosely applied, braked, thread guide arm *d* provided with a counterweight and carried along by a lug *f*, the stroke of which is limited by a stop pin *h*, and further the disconnectable hand wheel *e*. On the forward part of the arm *d* is arranged the thread inserter *i*, whose tines i_1 bent horn-like, engage under the needle hooks on both sides in the motion and bring the tongues of any possibly unopened needles into the desired position. A stiff resilient material presser *k*, which is screwed to *d* and partakes of the motion, or which as shown in dotted lines, may be arranged stationary and with small tines engaging between the needles, has the purpose of holding down the article to be mended, which is slid over the ball-like head, and simultaneously to close the needles which slide downwardly thereon and spring back somewhat, after the same have engaged the thread of the passing thread inserter *i*. The tongue presser *m* acts, by forward pressure, to keep the needles and/or their tongues closed as desired, in order to carry along the mesh loops therewith. 3283 3284

The operation is as follows: 3285

The article to be mended is inserted to such extent, with the needles retracted, that the hole in question will lie behind the needles. Upon rotation of the hand wheel, the latter come forward one after another and thereby, first still penetrate the undamaged, old, mesh structure. The lug *f* carried along by the hand wheel has now engaged against the latch *g*, Fig. 4 provided with a pressure spring, of the arm *d* which is in its lateral limiting position and upon further motion carried along

3286 the latter, so that the thread inserter *i* will pass the extended needles in such way that the same, upon their downward motion, grip the thread one after another and, forming connected loops, draw it into the old mesh fabric; meanwhile the arm *d* has reached its other limiting position and the latch *g* has allowed the lug *f* to pass through, so that the retraction of the needle could be completed. Now follows the forward motion of the article, as far as the loops held by the needles permit. The hand wheel is now turned in the opposite direction; the same operations are repeated in correspondence with this direction; the needles have
3287 again drawn the new loops through the old fabric (or at least partially) and also through the first new row of loops. The hand wheel is now again given the first direction of rotation and so forth, and continually new mutually connected rows of loops are formed which gradually close the hole of the article to be mended. When this has occurred, then it is completed by inserting manually between the needles the well-rounded edgewise teeth of a comb in order to produce longer closing meshes, over which the thread will lie and form longer loops, and furthermore the presser *m* is pushed forward in order to hold the needles closed
3288 and to force them, after the removal of the comb, to carry along the loops upon their rise. By tearing off the thread and again inserting the needles, the finished work is obtained, wherein the end thread is further inserted through the last loop and the latter drawn tight.

Figure 7 shows clearly the connection of the newly produced mesh structure (drawn in heavy black) with the old (double lined) as it occurs in the working. The row of points designates the first points of engagement of the needles; if they

are chosen differently, the rows of meshes might appear displaced with respect to one another. 3289

In order to be able to reel up the necessary thread, the rotatable spool rod *n* of the arm *d* has a cord pulley *o* over which a cord may be laid which simultaneously surrounds the hand wheel, which then makes possible a reeling up of the thread upon the thread spool secured upon the rod.

Figure 5 shows more clearly the head of the tongue needle used.

Figure 6 shows the use of a stocking knitting needle, pointed over the hook.

The arrangement of figure 8 prevents a complete rotation of the shaft *e*, in that the screw *q* does not allow the lobe *r* of the cam disc to pass by. 3290

CLAIMS:

(1.) A process for darning mesh structures wherein the article to be mended is repeatedly pierced by a row of knitting needles in its progress, and is combined with the newly produced structure.

(2.) The arrangement necessary for carrying out this process, consisting of tongue needles or stocking knitting needles pointed over the hook, whose extensions intersect one another and which lie in a common plane and are moved by means of an oscillating cam groove. 3291

(3.) In order to insert a thread into the needles defined in claim 2, the arrangement of a thread inserter oscillating in a circular arc parallel to the plane of the needles, whose little horns, on both sides, simultaneously assure the opening of the tongue needles.

EMIL SCHULTE IN ELBERFELD, H. KEMMER IN BOCHUM
UND CARL ENGEL IN ELBERFELD.

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Maschine zum Ausbessern schadhafter Strümpfe.

Fig. 2.

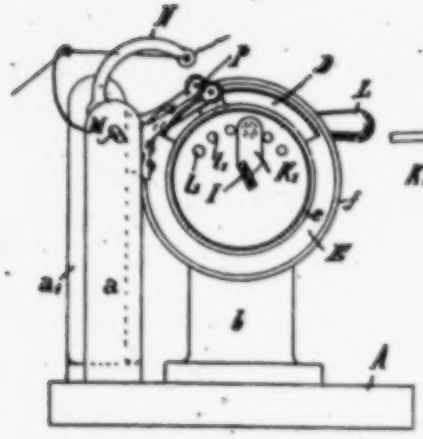


Fig. 1.

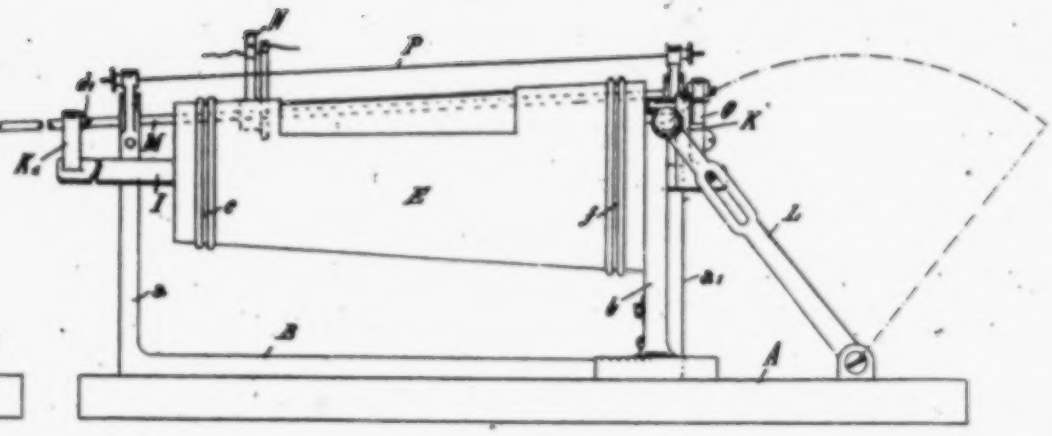


Fig. 3.

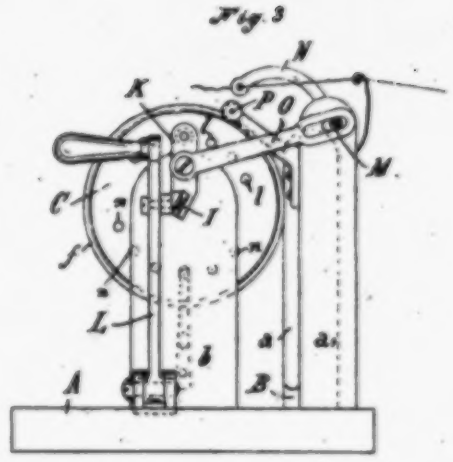
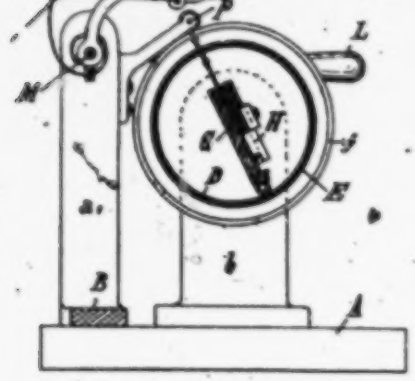


Fig. 5.



Schnitt x–x

Fig. 4.

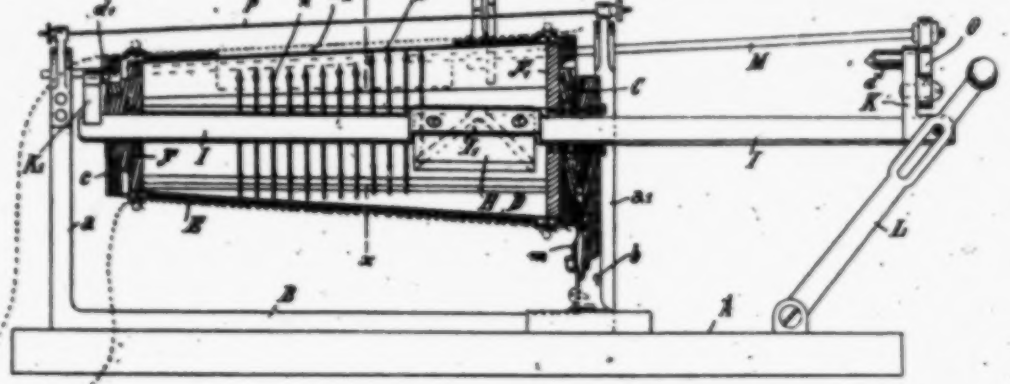


Fig. 10.

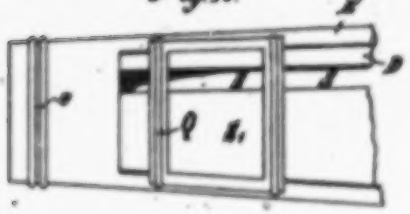


Fig. 6.

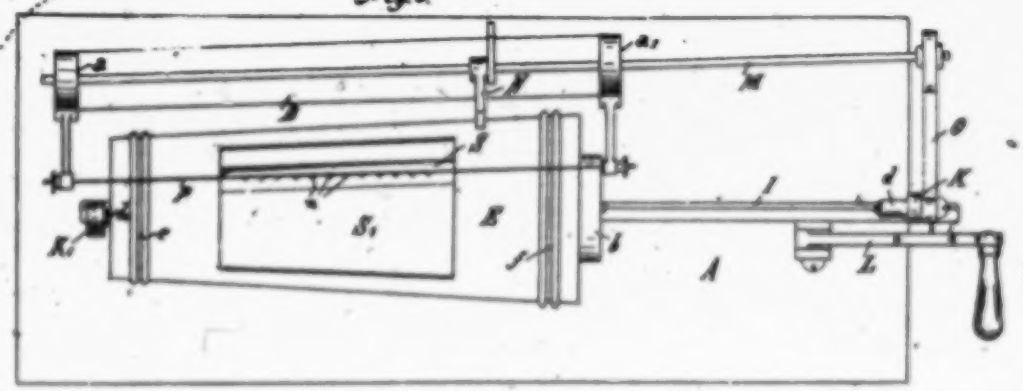


Fig. 7.

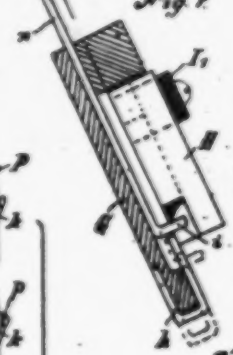


Fig. 9.

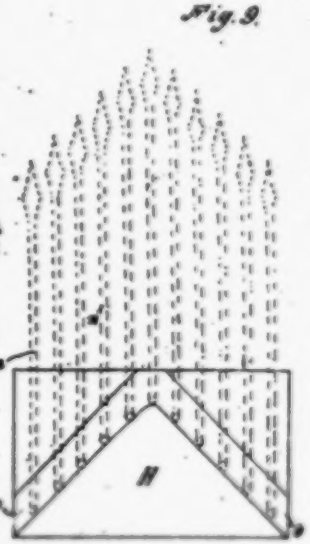


Fig. 8.

Fig. 11.

Schnitt y–y

Zu der Patentschrift

№ 125108.

PHOTOGR. DRUCK DER REICHSDRUCKEREI

Translation of German patent no. 125108, class 25 a gr. 30, to Emil Schulte of Elberfeld, H. Kemmer of Bochum and Carl Engel of Elberfeld. 3295

Machine for Repairing Damaged Stockings

Patented in Germany from January 9, 1898, published Nov. 30, 1901.

The object of the foregoing invention is a machine for repairing damaged stockings by means whereof the disadvantages and loss of time of the usual hand repair work is obviated. 3296

The foregoing is distinguished from other constructions for the mechanical repairing of knitted goods by the fact, essentially, that with it the article to be repaired for the entire extent of even a comparatively large hole is stretched over the correspondingly open place in a hollow body and thus the entire repair can be made without shifting and restretching of the article. The machine consists in the main of the hollow body over which the stocking is to be pulled and of half a knitting machine installed on the inside of the aforesaid hollow body. Also provision is made for holding fast the stocking and stretching the edges of the hole over the 3297 opening in the side of the hollow body, as well as auxiliary means for lifting and closing the needle latches and for feeding the thread.

One constructional form of the machine is shown in the drawing and here fig. 1 shows a side view, figs. 2 and 3 two top views, fig. 4 a longitudinal section, fig. 5 a cross-section and fig. 6 a top view while figs. 7, 9, 10 and 11 show details on a larger scale

and fig. 8 in outline for various positions of the needle the opening and closing of the needle latches in going up and down.

The hollow body should be a cylinder E, tapering somewhat toward one end which is provided with an opening in the upward turned side of the jacket upon which the damaged portion of the stocking comes to lie and through which the needles can work. Self evidently of course the hollow cylinder might be vertically positioned with sidewise working needles. The hollow body in the case of the foregoing arrangement and constructional form does not have to be tapered from one end to the other but is without doubt, in consideration of the tapered form of the stocking from the upper end to the foot and in view of the easy stretching of the same as well as working of holes of any shape and size and at any point in the stocking, the form of the hollow body E is of round cross-section, that is essentially of a cylindrical shape, but with tapering toward one end the most suitable and convenient.

Corresponding to the somewhat tapering form of the hollow body E there is also formed the opening S1 in the same as a longitudinal slot running approximately toward the tapering end of E, corresponding in a way to the greatest breadth of a hole in the stocking of selected width assumed to be possible and of such a length that the necessary number of needles placed side by side can work through the hole toward the outside so that a hole in the stocking of the greatest length possible can be knitted.

Now as in the case of this comparatively very large form of the opening S1 in the cylinder E or better said hollow cone E with small holes the dis-

advantage would occur again that the edge portions 3301
of the holes would not be sufficiently supported, therefore would not be stretched and would hang slackly toward the inside of E, hence in the foregoing case on the inside of E there is arranged a second hollow body D which shows merely a narrow lengthwise slot S of the necessary breadth in order to allow the needle row to pass through comfortably so that the edge portions of the knitted goods about the hole would rest on that part of the body D enclosing the slot S which latter is so dimensioned that on the inside it will lie as closely as possible to the wall of E. Obviously D does not have to be a hollow body for a part of a hollow body 3302
would be sufficient so that the same would cover the entire opening S1 underneath in the outer hollow body E as far as the rim and that in any position of the opening S1.

The latter is moved in the case of the foregoing constructional form while the outer body E is revolved over the body D about its longitudinal axis from its outermost lengthwise edge on one side to the outermost lengthwise edge on the opposite side as the needle row n is stationary, and remains immovable in its position while around this needle row various rows of mesh can be formed in the stocking pulled on to the outer hollow body E, the 3303
latter and therewith also the body E holding it can be brought into a gradually advancing always different position with respect to the needle row as the arrow indicates in the cross-section of fig. 11 and as is shown by a comparison of this figure with fig. 6. In fig. 11 the edge r of the opening S1 of the small top side of the hollow cone E seen from the left intersects in the left lengthwise edge of the slot S in the inner body D while in fig. 6 the edge r of

3304 the opening S1 is advanced further in the direction of the arrow indicated in fig. 11 and has removed from the edge p of the slot S, which rotary motion of the hollow body E is continued or may be continued until the right hand lengthwise edge s of the opening S1 coincides with the right hand lengthwise edge q of the slot S.

This rotary gradual forward movement of the hollow body D is carried out only so long as the breadth of the hole to be mended in the stocking renders necessary.

The needles n on the inside of this hollow body are moved by a to and fro moving lock (cam box)
3305 such as is also used for moving needles in knitting machines while the lock H lies in a suitable depression I 1 embracing the same in a bar I which is moved or goes to and fro in the axis of the hollow body E.

As fig. 7 shows on a larger scale the individual needles lie in grooves of a somewhat obliquely positioned bed G in such a way that their turned down foot ends i project somewhat in front of the surface of the bed G toward which the grooves or troughs containing the needles are open and thus can be embraced by the slot o of the lock H. As fig. 9 shows, this groove runs zig-zag or like mountains so that in the case of the movement of the
3306 lock to the left as well as to the right the needles will be lifted by row and then can be pushed down again.

Now so that the needles will not be worked unnecessarily far into the undamaged portion of the stocking across the hole or its edges, an arrangement is provided so that only as many needles will be brought into action as is made necessary by the length of the hole while the other needles lying in

the bed G remain out of action as the action of the lock H on the same is made impossible. Thus for example of the needles indicated in fig. 4 the eight on the left are out of action, the four on the right are in action; this is secured by the fact that those in action are higher in the needle bed G than the others. Just how this is done is illustrated in fig. 7. As a rule all the needles are so deep in position that, as indicated in fig 7, see dotted lines, the foot of one needle i will rest on the lower edge of the needle grooves cut in the bed G. In this case the lock H in the to and fro motion of the slider I moves above the needle foot i without touching the latter and gripping it. If on the other hand we push from below across the edge of the needle bed G elastic clamps h then one shank of the latter if the clamp is correctly placed will come under the foot of the needle just above, lifts the same and therewith the entire needle in its groove or trough in the needle bed G and that so far that now the lock H will catch the foot i and thereby the movement of the needle in question can be effected in the direction of the arrow. Obviously any other lock arrangement may also find employment. 3307 3308

The movement of the slider I takes place, as indicated suitably through a lever L movable to and fro by hand which is rotatably attached to the base plate A carrying the whole arrangement and by means of a slotted guide grips a pin which is suitably positioned at one end of the slider I so that if the lever L executes the circular motion the slider I will perform a rectilinear to and fro motion. The latter is done in the pedestal b attached to the base plate A in the constructional form of the drawing. To this is also attached by screws or the like the head plate F1 of the inside hollow body D placed inside 3309

3310 the hollow body E in which the needle bed G together with the needles is placed as fig. 5 shows, and that in such a way that between the pedestal b and the head plate F1 there is formed a sort of neck of round cross-section or else a solid disk. About the latter is rotatably positioned a ring C which forms the corresponding head plate of the outer hollow body E at this end so that therefore the neck on the body b serves as a journal for the ring C or the outer hollow body E. In similar manner there is attached to the other tapering end of the inner hollow body D a head plate F which carries a projecting central disc which serves as journal and
3311 guide for the corresponding annular head plate c of the outer hollow body E at this end. The slider I passes through a suitable opening in the middle of the head plates F and F1.

Now in order not to have to effect by hand the gradual turning or advancing of the outer hollow body E or of its opening S1 with respect to the inner hollow body D or its slot S each time by the breadth of a mesh when the preceding mesh row has been finished by the needles, but so as to be able to do this automatically and mechanically arms K and K1 are connected with the slider I and these carry on the hollow body E or directed towards
3312 its head surfaces feed pins d and d1 with wedge-shaped or conical points. Corresponding to these points d and d1 there are provided in the head plates c and C of the external hollow body E a number of holes standing about the axis which are so arranged that each time at the proper position of the slider L, that is if a to and fro movement of the same is almost completed and hence the lock H has arrived at one or the other end of the hollow body in its outermost position, the tip d or d1 will

strike just against the edge of the hole 1 positioned 3313
in front of same unilaterally on the side turned toward the direction of motion of the hollow body E and in the further motion in the previous direction of motion as far as the end of this motion enters the opening 1 in such a way that in so doing the edge of the hole 1 in such a way that in so doing the whole rim of 1 at the place in question must gradually move from the outermost point as far as the base of the pin d or d1 and thus the disk c or C is displaced in the direction prescribed for it by half the thickness of the pin or of the tip d or d1 or by the width of the holes 1 and their distance apart is so selected that the forward rotation on every en- 3314
gagement of the pin d or d1 is equivalent to a forward movement of the hollow body E or of the stocking drawn thereon in the direction of the arrow (fig. 11) amounts to one row of meshes. Now as the engagement of the pins d and d1 is effected alternately, that is at one time the disc c, the other time the disc C is driven forward hence the holes c and C are so displaced with respect to one another that the holes of one disc and the intervening spaces of the other come opposite and vice versa. So that not unintentionally an excessive turning or moving backward of the hollow body E can take place while the slider I is in motion and none of the pins d and 3315
d1 engages in corresponding holes 1 a snap spring m which, as is apparent in fig. 4 at the foot of the pedestal b, with their suitably shaped head ends n engage in suitable depressions or radial grooves on the outside surface of the disc C and thus each time the latter and therewith the hollow body E are held fast in the position given by the pins d and d1 which have come into action.

3316 As in the case of the constructional form indicated in fig. 4 on the deflecting of the lever L from the outermost position on the right as indicated into the outermost position on the left indicated in fig. 1; the slider 1 with its left hand end will likewise move a considerable distance to the left and hence must enter the downward hanging end of the foot of the stocking indicated by dots in order to find room, hence it would be conceivable that this constructional form if the machine is to be used even for very short and small children's stockings would not be applicable in that on the other hand the left hand end of the slider I must pass through the stock-
3317 ing, hence in fig. 11 an arrangement is shown in which this error is avoided. In this constructional form the end of the slider I on the left beside the depression or the hoop shaped piece I_1 which embraces the lock H would be entirely dispensed with and then with this slider in both directions of motion automatically the hollow body E and a width of meshes could be moved forward across the needles. For this purpose, then, the arm K1 with the pin d1 is attached on the right to the hoop I_1 in such a way that this pin d1 from the inside of the hollow body D can enter in corresponding holes 1 in the head disk C of the hollow body E and thus
3318 come into action. For this purpose there must merely be present in the head plate of the inner hollow body D at the corresponding place an opening through which the pin d1 can pass so that the holes 1 will come into action and further these holes 1 must be displaced with respect to those for the pin d or which would be much more simple and suitable and also is assumed in fig. 11, the pin d must be displaced with respect to the pin d1 by so much that by the alternate action from left and

right on the head plate C each time this and the hollow body E attached thereto is turned by the width of a mesh. 3319

The hoop B still apparent on the base plate A carrying at each end the supports a and a1 serves for the application and the guidance of the thread guide N which latter self evidently is so placed and must be connected with the lock H so that it will always feed its thread to the needle which with its foot has just arrived at the peak of the crest of the groove of the lock H, that is to say at its outermost position. For this purpose a guide bar M passed into the supports a and a1 on which the thread guide N is so attached that it lies exactly opposite 3320 the middle of the lock H, exactly parallel to that line which would pass through the tips of all the needles in their highest positions and by the lever O would be connected with the slider I at its end or with the arm K positioned there so that with IM it must always move positively without M being able to change its position to H in the longitudinal direction while on the contrary on account of the jointed attachment of O on the lever K and on account of the slotted guide whereby O is connected with the end of M, M always in spite of the lengthwise displacement is able to maintain its oblique position with respect to the horizontal plane passing through the axis of the hollow body E while at the same time I moves in this axis. 3321

The most suitable arrangement for opening and closing the needle latches which in this instance in contrast to all other knitting machines do not first make the knitted goods but first of all, at least at the rims of the holes pass through the finished goods from inside to outside and then, returning into the same, must carry out the tying of the thread is to

3322 have a strong, elastic, but comparatively thin wire P, for instance a steel wire, say about the thickness of a piano wire, which is attached to brackets on the supports a and a1 and is tautly stretched. If now the needle, as is indicated in the top position in fig. 8, goes upward in the direction of the arrow, then its tip moves past the wire P; the latter in the further moving up of the needle into the second position from top of fig. 8 is pressed somewhat to one side (to the right in the drawing) while it slips down on the gradually thickening needle head and thus passes into the corner between the needle head hook and the latch, in the further upward move-
3323 ment of the presses on this and then snaps back so that it comes again on to the shaft of the needle as indicated in the third from top drawing in fig. 8. On the further moving upwards of the needle, the wire P slips back to the side (to the right) down over the tip of the latch as the next lowest position (the third lowest) of fig. 8 shows and now snaps back if the tip of the needle latch has passed, see second from bottom drawing in fig. 8, into its original position and lies tightly against the needle shaft. Now the needle has attained its topmost position and begins to withdraw in the direction opposite to that of the arrow, as is indicated in the
3324 two lowest positions, in fig. 8, in which case the tip of the latch now directed downward can enter the knitted goods directly and will stick there suspended or at least might give occasion for snarls, restrictions or thread breakings. This is now, however, pulled in again by the wire P which is drawn into the corner between latch and needle shaft, flapped up at the right time, and brought to a complete stop as indicated by the lowest position of fig. 8, whereupon further going down of the needle

slips the wire P again on the outside of the latch and on the corresponding side of the needle head upwards until it finally assumes again its normal position. In this fashion, the latch of the needle is again well closed and so prevents by any chance the needle head hook hanging caught in the thread of the knitted goods and the possibility of tearing same. 3325

As figs. 7 and 8 of the drawing show, in this case, in order that the needle shall pass easily and smoothly from within through the comparatively loose and flexible edges of the knitted goods at the place of the hole in the stocking, the tip of the needle head is made as long and as thin as possible, and that in such a way that the head toward the bend and the hook on all sides is somewhat rounded so that here again it is neither a question of a blunt tip nor of a flat tip but of a long, conical needle of round cross-section and tip. 3326

The attachment of the stocking drawn on to the hollow body E is done on the latter simply and suitably as indicated in fig. 4 in such a way that rubber cords, rings or bands are placed around the stocking at the lower end of the hollow body E which press the same therefore round about E in doing which so as to prevent a slipping or sliding of the small bands and of the stocking in the lengthwise direction, there may be provided on the outside surface of the hollow body E near the end the corresponding grooves e and f between circular elevations, for example collars or the like, in such a way that the tightly stretched rubber (or also a closed ring forming a tail-pipe spring) will press the knitted goods at this place right firmly into the groove e or f. 3327

3328 In order to make the edges of the hole to be mended somewhat less pliable to the pulling in of the needle from within between the meshes which causes bending-out of the same at first not apparent and at the same time even in the case of shorter holes than the length of the slot S to be able to move the whole mesh structure closer to the hole, it is possible to bring over the end of the stocking stretched on E at the proper place a sort of stretching frame Q as is indicated in fig. 10 in such a way and by clamping on, for example by means of rubber or spiral spring rings or by binding on and the like attached thereto so that the opening to be closed
3329 will now come to lie exactly on the intersection of the frame Q or the space enclosed therein and the slot placed underneath S.

Instead of having the needle bed stationary as has been done in the example described, that is to say, having the row of needles always working in one and the same plane and the hollow body by rotation about its axis always advanced by the width of a mesh toward the plane of working of the needles, it is obvious that also the hollow body E could be stationary and the row of needles by gradual change of the angle of its working plane directed radially to the axis of the hollow body can
3330 be advanced gradually and horizontally under the damaged place by the width of one mesh at a time whereby, then, if value is attached to the longitudinal slot which diminishes the working opening and supports the stocking until just up to the needle row, obviously the inner hollow body D which contains the longitudinal slot, located around the row of needles, must revolve with the needles and the needle bed around the longitudinal axis.

PATENT CLAIMS 3331

1. Machine for repairing damaged stockings, distinguished thereby that the closing of the hole is done by means of half of a knitting machine which is placed on the inside of a hollow body receiving the stocking to be repaired.

2. Machine as in claim 1, distinguished thereby, that in addition to the hollow body E serving as support for the stocking for the purpose of holding the goods close to the row of needles passing through same there is furnished a second hollow body D positioned within the first with a narrow slot S 3332 and for short holes there is provided a stretching frame Q with wide slit on the outer hollow body and the goods thus held fast and everything so arranged that either automatically the stocking support E with frame Q is turned after each row by the depth of one mesh or the inner hollow body D with the half knitting machine (G, H) is turned in the same manner in the stationary hollow body E.

Tr/CTP.

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Zu der Patentschrift 359064
Kl. 25a Gr. 31

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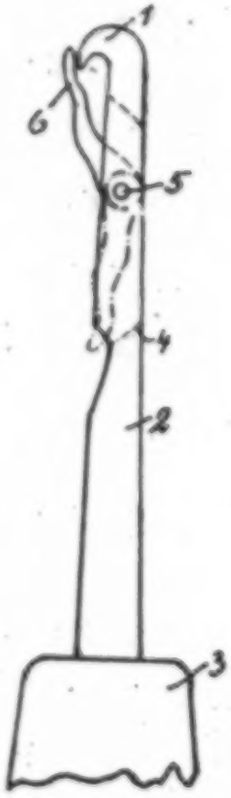
Abb. 1.



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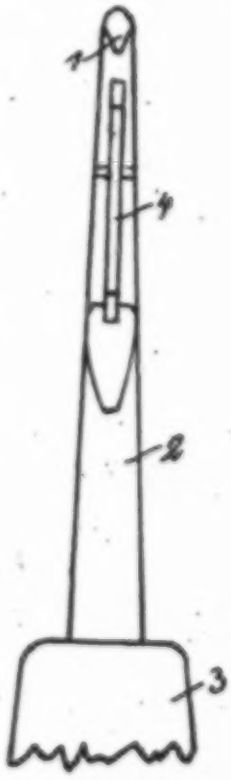

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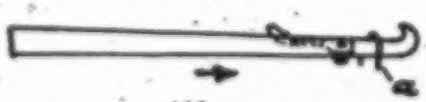

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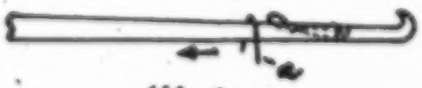

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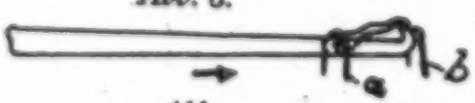

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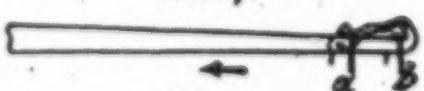

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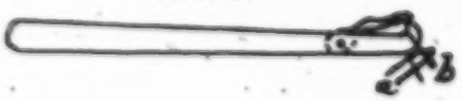

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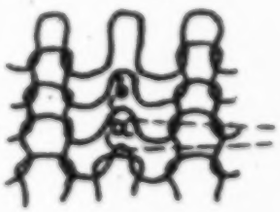

PHOTOGR. DRUCK DER REICHSDRUCKEREI

Translation of German Patent No. 359064, Class 25 a—Group 31, to Alfred Kleemann, Berlin; patented in Germany from January 26, 1921; published September 16, 1922. 3337

Needle for picking up stitches.

The object of the present invention is a needle for picking up fallen stitches in knitted articles. The essential feature consists therein, that the needle, resembling a crochet hook and fastened in a handle, possesses a movable latch, in the nature of hosiery machine needles, having several undulations. It thus becomes possible to pick up the stitches, a work which otherwise can practically 3338 not be done, especially in very fine knit ware, as, by means of this latch, the picked up stitches can be safely carried through between the fine threads of the other stitches, and the gliding over of the stitches is delayed by the undulations. In spite of the work by hand proceeding more slowly as compared with machine work and in spite of the sharply inclined position of the needle during this hand work, a sure manipulation in this way becomes possible.

The drawing illustrates the new needle in one example of construction: Fig. 1 and 2 are enlarged views of the needle, in Fig. 2 of which, for the sake 3339 of clearness, the latch is omitted; Fig. 3 is a representation of a fabric with fallen stitches; Fig. 4, 5, 6, 7, and 8 are sketches which illustrate the picking up of a stitch.

The needle shaft 2, issuing at the end in a hook 1, is inserted in a wooden handle 3, and carries in a slit 4 with joint 5 a latch 6, which has the undulated form represented. The latch 6 in one extreme position lies against the hook 1, and in the other

3340 extreme position in such a way against the wall of the slit that its point projects suitably for catching the thread.

The picking up of the stitches a, b in Fig. 3 takes place in the following manner. According to Fig. 4 the hook is inserted through a fixed stitch and is pushed along until the fixed stitch glides according to Fig. 5 behind the point of the open latch. Then the needle is drawn back, so that the fixed stitch closes the latch and according to Fig. 6 remains at rest in the bend of the latch. The loose stitch is now picked up by insertion with the needle between the hook and the latch according to Fig. 7
3341 and drawn through the fixed stitch (Fig. 8). Thereafter the whole process is repeated as often as there are any open stitches left.

Patent Claim.

Needle for picking up stitches, characterized thereby, that it is fastened in a handle and possesses a hook resembling a crochet hook, together with a movable latch, whose outer surface, for the purpose of delaying the gliding over of the stitches, has several undulations.

Tr/GWH
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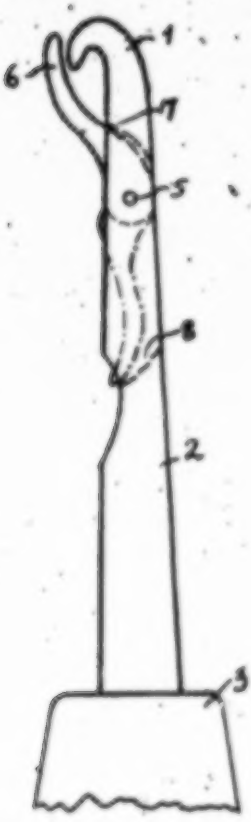

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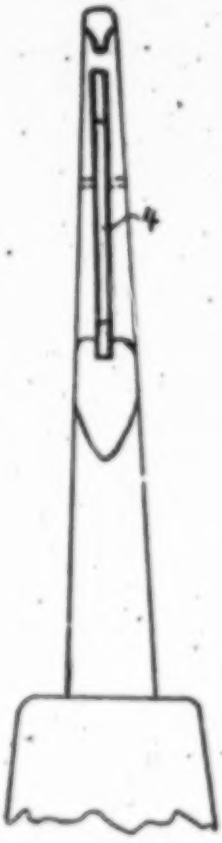

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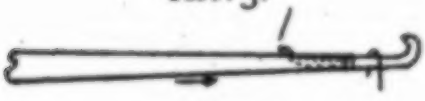

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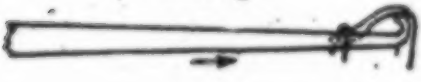

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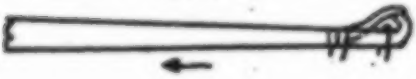

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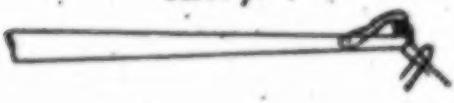

PHOTOGR. DRUCK DER REICHSDRUCKEREI

Translation of German patent No. 361782 to Alfred Kleeman, in force in Germany from August 18, 1921; longest duration, January 25, 1936; published October 19, 1922; addition to patent 359064. 3346

Needle for picking up stitches.

The main patent describes the needle already known for picking up stitches, in the form of a latch needle with handle, the latch being provided with undulations for impeding the stitches in sliding over.

According to the improved invention, the latch is provided with only one wave so that it has a double curve shape. This is not only more simple but greatly to be preferred since in this way the stitch is held back very efficiently at first and after this is no longer necessary, slides off quite easily, while when there are several waves, the stitch is not only held back by the first but also, when it should subsequently slide off, it is held back by each wave of the series and the work is hindered too greatly. 3347

A valuable detail of the new needle is furnished by forming the wave in such a way that the latch when in the closed position fits in the slot of the body of the needle so that its point is held away from the hook. In this way, the bending of the latch to the side, occasionally occurring when in use, becomes harmless since in spite of the bending the latch still protects the point of the hook while otherwise it would turn past it and leave it entirely free so that even with slight bending to the side, it would be impossible to use it. 3348

The drawing shows the new needle in one form of construction.

Figs. 1 and 2 are greatly enlarged views of the needle, the latch being removed for clearness in Fig. 2.

3349 Figs. 3, 4, 5, 6 and 7 are illustrations showing the picking up of a stitch.

The needle shaft 2 ending in a hook 1 at one extremity is inserted in a wooden handle 3 and holds a latch 6 in a slot 4 by a pivot 5. The latch is given the double-curve or waved form illustrated. This latch 6 rests against one wall 7 of the slot in such a way that it does not touch hook 1 in the closed position. In the open position, it rests against the other wall 8 of the slot in such a way that its point projects enough from the slot to allow it to be seized.

The picking up of the stitches occurs in the fol-
3350 lowing way: According to Fig. 3, the hook is pushed through a fixed stitch and the needle thrust through until the fixed stitch slides past the point of the open latch, Fig. 4. Then the needle is drawn back so that the fixed stitch closes the latch and remains resting in the curved part of the latch, Fig. 5. The loose stitch is now picked up between the hook and latch by sticking in the needle according to Fig. 6 and is drawn through the fixed stitch, Fig. 7. The whole operation is then repeated as often as there are open stitches remaining.

Claims:

3351 1. Needle for picking up stitches according to patent 359064, distinguished by the fact that the latch has a double-curved shape.

2. Needle for picking up stitches according to claim 1, distinguished by the fact that in the closed position, the latch stands away from the hook of the needle with its point because of striking against the body of the needle.

Tr. MMJ
9/8/26

WASHINGTON
DISTRICT OF COLUMBIA } ss.: 3352

I, the undersigned, CARL A. HELLMANN, being duly sworn, depose and state

That I am a graduate in Electrical Engineering of the University of Illinois and formerly was Instructor in Physics at said University, and later, for over ten years, an Assistant Examiner in the United States Patent Office, and that I am a Member of the Bar and Registered Patent Attorney.

That for over twenty one years much of my work has been the study and translation of foreign patents and technical literature, particularly in the 3353
German and French languages, with which I am familiar.

That I have made and verified the attached translation of Swiss Patent No. 77909, granted to Konrad Döring and Mrs. Lisa May nee Schütz, and that the same is a true and correct idiomatic translation thereof.

(Sgd) CARL A. HELLMANN

Sworn to and subscribed before me this twelfth day of January nineteen hundred and thirty one.

(Sgd.) CATHARINE S. WILTON 3354
(Notarial Seal) Notary Public, D. C.

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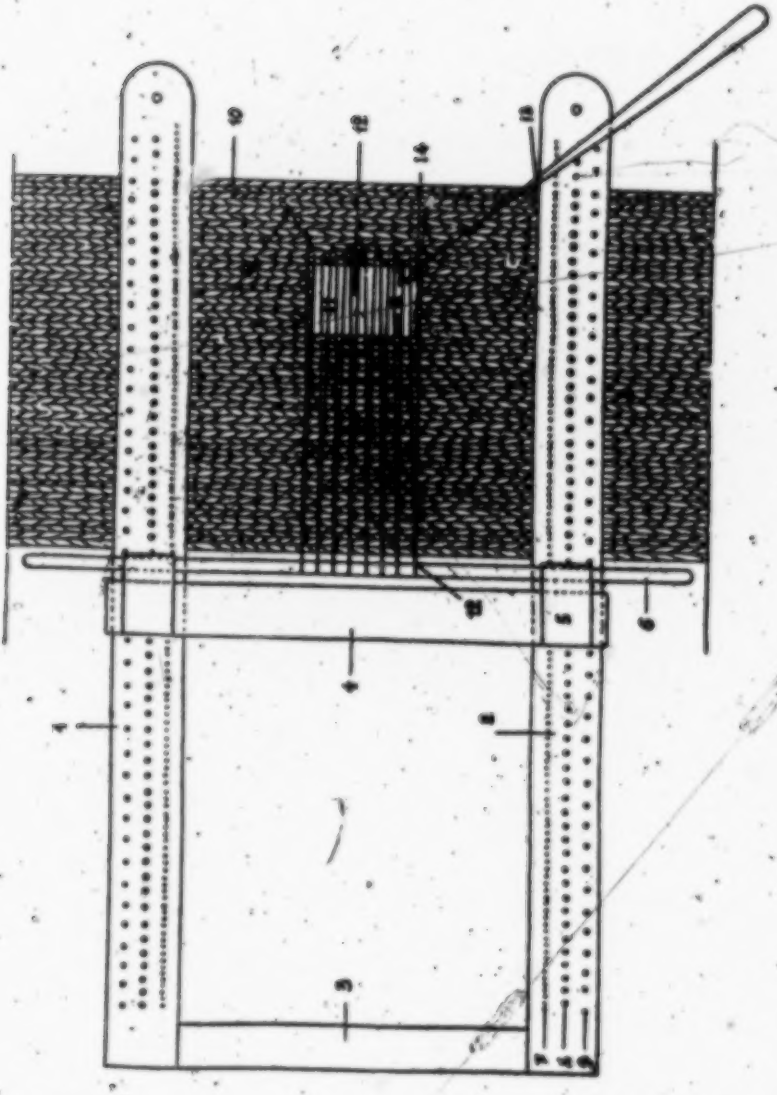
Konrad Döring und Frau Lisa May
geb. Schütz

Patent Nr. 77909
1 Blatt



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Swiss Patent No. 77909

3361

Application filed August 28, 1917;
Published October 1, 1918.

Konrad Döring and Mrs. Lisa May nee Schütz,
Marburg a. d. Lahn (Germany)

Process and Device for Darning Knitted Articles.

The subject of the invention is a process for darning knitted articles, such for example as stockings, jackets, as well as a device suitable for carrying out the process. The process has the purpose of darning articles of the type named with the use of the smallest possible amount of material, in such manner that the mended part is almost invisible and shows no unevennesses, which are uncomfortably noticeable upon wearing the mended article.

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The process consists essentially in that the part to be darned is spanned a plurality of times by a thread which is led transversely to the direction of the rows of meshes (loops) and hereupon by means of a crocheting needle the meshes at one edge of the damaged part are taken up individually, and with the help of the spanning thread, are knitted (crocheted, hooked) up to the oppositely lying edge and then secured therein. An exemplary embodiment of the device to carry out the process is shown in the accompanying drawing in plan and in combination with an article to be darned. The device illustrated has two rails 1 and 2 parallel to one another which are rigidly connected together at one end by a cross rail 3. On the two rails 1 and 2 a second cross rail 4 is shiftable, which carries in

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3364 its two arms 5, a bar 6 serving for guiding the spanning thread, and shiftable in and out in its longitudinal direction. The rails 1 and 2 are provided with three rows of holes 7, 8 and 9 whose spacing from one another is made equal in the individual rows, however, in the different rows is chosen to correspond to the different sizes of meshes. These holes serve as marks for the setting of the rail 4, and/or the bar 6 with respect to the part to be darned. Upon this adjustment depends the correct length of the spanning thread to be used for the darning.

The finer the yarn, the less length of thread is
3365 necessary for forming the meshes; the coarser it is, the greater length of thread will be used up in forming the meshes. Accordingly the series of holes with the smallest divisions serves as a measure for the length of the spanning thread when using the finest yarn, and the series of holes with the coarsest division serves as a measure when using the coarsest yarn. The method of using the device, and/or the carrying out of the process by means of this device, is preferably as follows:

The device is secured, by means of the rails 1 and 2, to the article 10 to be darned, for example a stocking, whose damaged part 11 is stretched over
3366 a cushion, preferably filled with fine sand or the like, in a suitable manner, for example by pinning it by means of pins. The securing is done in such way that the rails 1 and 2 extend transversely to the direction of the rows of meshes and the rail 4, with the bar 6 as illustrated, lies to the left of the part 11 to be darned. The rail 4 with the bar 6 is so adjusted upon the rails 1, 2 that its spacing from the damaged part 11 corresponds at least to

the width *a* of this part. The setting of the rail 3367
4 and bar 6, for example, is done by counting the number of rows of meshes to be mended to the right and to the left, whereby the rows of meshes lying adjacent to the left and right of the part to be mended should be included. Then there is counted, starting from the left side of the part to be mended, on one of the rails 1 or 2, on that row of holes whose divisions correspond approximately to the thickness of the thread, the same number of holes as corresponds to the number of rows of meshes to be mended, and then the bar 6 is set at the point thus determined on the rails 1 and 2. (For clearness, on the drawing the bar 6 is shown too far removed 3368
from the damaged part.) The securing of the cross rail 4 is accomplished by inserting pins between the bar 6 of the rail 4 into the cushion. Hereupon follows the stretching of the thread 12 over the damaged part 11. This stretching is done by engaging the thread 12 in a needle, securing the free end of the thread in the article 10 near the defective part 11 and then carrying the thread 12 to and fro, in the manner shown in the drawing, around the bar 6 and over the damaged part 11 while carrying it through the rows of meshes adjacent to the defective part. This guiding to and fro of the stretched thread 12 over the part 11 is done in ac- 3369
cordance with the number of meshes to be crocheted into the damaged part. Now follows the darning of the damaged part 11 by crocheting in the meshes lacking therein. This is done by taking up, near the lower edge, to the right of the damaged part 11, out of the solid part of the article 10, by means of the crocheting needle 13, first a mesh 14 lying adjacent to the right edge of the part 11, carrying the stretching thread around the crocheting needle and

drawing the thread through the mesh 14, whereupon the first mesh of the darned surface is finished. Hereupon the second stretched thread is carried around the needle and the crocheting then proceeds in this way up to the upper edge of the part to be mended. The securing of the rows of meshes is done in that with the darning needle the last mesh of the row of meshes produced is sewn tight to the object to be mended. This procedure is repeated with respect to all the following meshes lying to the left of the mesh 14. As soon as all the meshes have been crocheted-in to the top, and/or within the damaged part 11, the stretched thread 12 is used up. Upon crocheting-up the meshes, the rail 4 with the bar 6 is drawn constantly closer to the left edge of the part 11; because the stretched thread is drawn in by crocheting. Before the crocheting-up of the last mesh the bar 6, around which the stretched thread 12 is passed, is removed, in order to permit this crocheting-up to proceed without obstruction.

CLAIMS:

I. Process for darning knitted articles, characterized by the fact that the part to be darned is traversed a plurality of times by a thread passed to and fro transversely to the direction of the rows of meshes whereupon, by means of a crocheting needle, the meshes are separately taken up at one edge of the damaged part by means of the stretched thread are crocheted-up to the oppositely located edge and then secured to the latter.

II. Device for carrying out the process in accordance with Claim I, characterized by two mutu-

ally parallel rails connected rigidly by a cross-rail 3373
at one end, and upon which a second cross-rail with a bar serving for guiding the stretched thread is arranged, and which are provided with holes arranged at certain spacings from one another, serving as marks for setting the second cross-rail.

Konrad DÖRING.
Mrs. Lisa MAY nee Schütz.
Attorney: Wilh. REINHARD, Zürich.

("Stretched threads 12" may equally well be read as "spanned or spanning threads 12"—Translator.)

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3376 WASHINGTON
DISTRICT OF COLUMBIA } ss.:

I, the undersigned, Carl A. Hellmann, being duly sworn, depose and state

That I am a graduate in Electrical Engineering of the University of Illinois and formerly was Instructor in Physics at said University, and later, for over ten years, an Assistant Examiner in the United States Patent Office, and that I am a Member of the Bar and Registered Patent Attorney.

That for over twenty one years much of my work has been the study and translation of foreign pat-
3377 ents and technical literature, particularly in the German and French languages, with which I am familiar.

That I have made and verified the attached translation of French Patent No. 538595, granted to M. José Marcel Ortega, and that the same is a true and correct idiomatic translation thereof.

(Sgd.) CARL A. HELLMANN

Sworn to and subscribed before me this twelfth day of January nineteen hundred and thirty one.

3378 (Sgd.) CATHARINE S. WILTON
Notary Public, D. C.

(Notarial Seal)

1127
DEFENDANT'S EXHIBIT J 48 B
1127

PATENT SPECIFICATION

Application Date: Jan. 18, 1921. No. 2476/21. **168,817**

Complete Left: Feb. 3, 1921.

Complete Accepted: Sept. 15, 1921.

LIBRARY
NOV 16 1921

PROVISIONAL SPECIFICATION.

Improved Method of Repairing Knitted Goods.

I, JOHN WALL POGSON, 262, Duke Street, Dennistoun, Glasgow, British subject, do hereby declare the nature of this invention to be as follows:—

This invention has reference to methods of repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

With goods of the above kind it frequently happens that the thread or yarn breaks in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article when repaired, presents an unsatisfactory appearance and is of little further use. The object of this invention is to provide an improved method of repairing knitted articles in which "ladders" have formed, whereby the appearance of a perfectly knitted article is produced.

The method, according to this invention, consists in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as by a piece of thread or yarn corresponding to the article.

A means for carrying out the method comprises a "latch" needle, such as used on a knitting machine. The needle is preferably secured in a handle and provided with a removable cap.

Dated this 17th day of January, 1921.

H. D. FITZPATRICK & Co.,
Chartered Patent Agents,
94, Hope Street, Glasgow.

COMPLETE SPECIFICATION.

Improved Method of Repairing Knitted Goods.

I, JOHN WALL POGSON, 262, Duke Street, Dennistoun, Glasgow, British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has reference to methods of repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

Goods of the above kind frequently have the thread or yarn broken in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article, when repaired, presents an unsatisfactory appearance and is of little further use.

The object of this invention is to provide an improved method of repairing knitted articles in which "ladders" have been formed, whereby the appearance of a perfectly knitted article is produced.

According to this invention, the method consists in looping or knitting each portion of the thread or yarn form-

ing the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as, by a piece of thread or yarn corresponding to the article.

A means for carrying out the method comprises a "latch" knitting needle, of the size and design as used in knitting machines, secured in a handle and provided with a removable damp proof cap.

Referring to the accompanying drawings, Fig. 1 illustrates a piece of knitted fabric with a "ladder", Fig. 2 a suitably mounted form of latch needle for repairing such "ladder", and Figs. 3 to 8, inclusive illustrate a method of proceeding for effecting a repair of a "ladder" in a knitted fabric, under this invention.

The means illustrated in Fig. 2 comprises a knitting needle *a* with a hinged latch *b*. The needle is secured in a handle *c* and the latter is fitted with a removable protective cover *d* adapted to enclose the needle *a* and keep it free from damp and dirt.

One manner of using the needle for repairing a "ladder" *e* shown in a piece of knitted fabric in Fig. 1, is illustrated in the series of views Figs. 3 to 8 inclusive. In Fig. 3 the needle *a* with the latch in the open position is in engagement with a loop *f* formed thereby in the bottom piece of thread or yarn g^1. The needle thus engaged is then moved to the position shown in Fig. 4 to enable the forward hook end to be directed towards the adjacent piece of thread or yarn *g* under which the hook is passed as shown in Fig. 5 and moved forwardly until the latch *b* passes the loop *f*. The direction of movement of the needle *a* is then reversed with the result that the latch is moved to the closed position by contact with the loop *f* and the piece of thread or yarn *g* is enclosed between the hook and the latch and passed under the loop *f* and formed into a loop g^1 as shown in Fig. 7. In passing the loop g^1 under the loop *f*, the latter passes out of engagement with the needle and the latter is then free to be moved forwardly over the loop *f* for engagement with a piece of thread or yarn *h* as shown in Fig. 8. Upon the hook being engaged with the piece of thread or yarn *h*, the loop passes beyond the end of the latch and a reversal of the direction of movement of the needle again closes the latch against the hook owing to the contact of the former with the loop g^1, and the loop thus formed in the piece of thread or yarn *h* is taken under the loop g^1 and the latter disengaged from the needle. By such a series of operations with each piece of thread or yarn in the ladder, each piece is looped or knitted with the adjacent piece and the whole of the damaged or imperfect part is repaired or made perfect. When the final loop has been made a piece of thread or yarn, preferably similar to that of the damaged or imperfect knitted fabric, is passed under the loop and into engagement with the margin of the damaged portion and knotted. The introduction of the piece of thread or yarn for tying the last loop may be effected by a sewing needle or by means of the latch needle, as will be obvious.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A method of repairing knitted goods in which the thread or yarn is broken with the consequent formation of a "ladder", consisting in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the adjacent portion of the knitted fabric by a piece of thread or yarn, substantially as set forth.

2. Means for repairing knitted goods according to Claim 1, comprising a latch knitting needle of the size and design as used in knitting machines mounted in a handle and provided with a removable damp proof protective casing.

Dated this 2nd day of February, 1921.

H. D. FITZPATRICK & Co.,
Chartered Patent Agents,
91, Hope Street, Glasgow.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.- 1921

[This Drawing is a reproduction of the Original on a reduced scale]

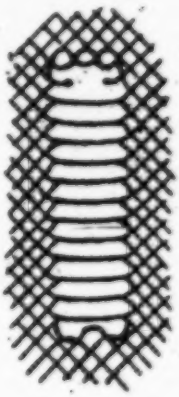

Fig. 1.

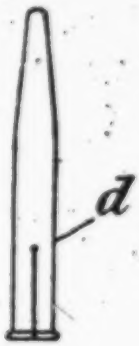

Fig. 2.

Fig. 3.

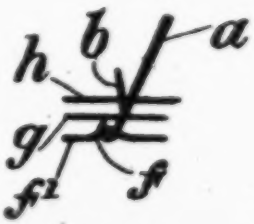

Fig. 4.

Fig. 5.

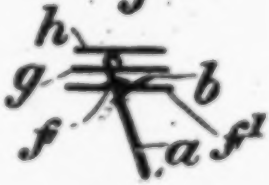

Fig. 6.

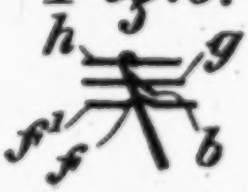

Fig. 7.

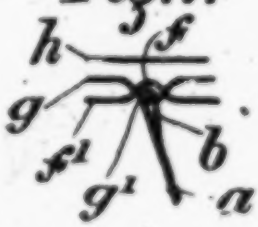

Fig. 8.

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DEFENDANT'S EXHIBIT K 49

N° 538.595 M. Ortega Pl. unique

Fig. 1.

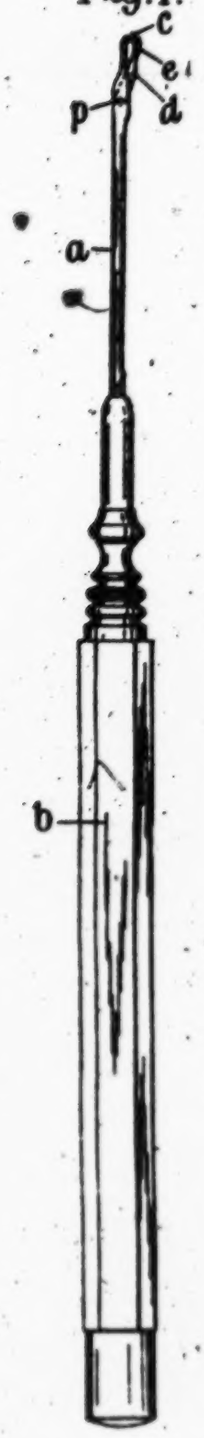


Fig. 2

Fig. 3.

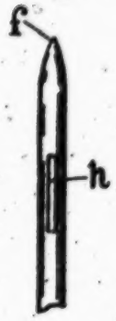


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

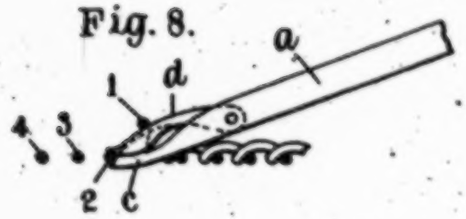


Fig. 9.

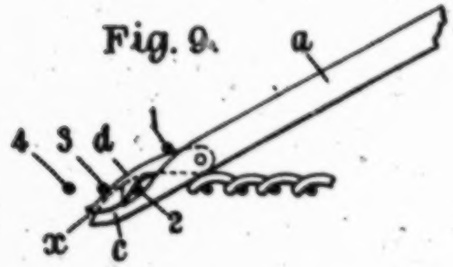


Fig. 10.

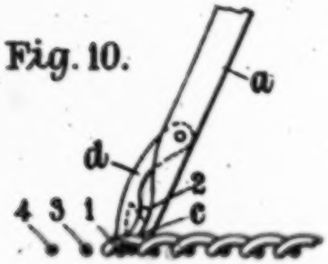


Fig. 11.

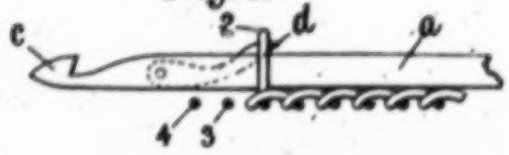
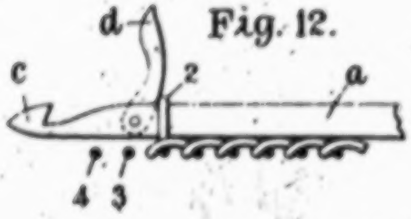


Fig. 12.



FRENCH PATENT No. 538595 3391

M. José Marcel Ortega, England.

Filed July 22, 1921; Delivered March 21, 1922; Pub. June 12, 1922.

(Application for Patent filed in England February 21, 1921—according to Applicant's declaration)

IMPROVEMENT IN NEEDLES FOR KNITTING AND CROCHETING AND SIMILAR NEEDLES.

This invention relates to means for darning stockings and other knitted fabric articles, that is to say 3392
to repair defects similar to the rungs of a ladder and resulting from the breakage of a loop of one of the rows of loops, this breakage having the result of freeing a second loop of the preceding row which the first secures, the freed loop in turn freeing the corresponding loop of the preceding row, the loops thus falling one after another successively in such way that the defect above named will extend itself from top to bottom throughout the entire extent of the fabric. The object of the present invention consists in providing means whereby each of the released loops may be recovered or "gathered" and secured by the loop of the row located 3393
above the one which has become freed, until the last loop has been gathered and secured by means of a needle and thread or any other suitable known means.

For this purpose there is provided an arrangement comprising a rod, of steel or other suitable material, provided at one end with a sleeve and at the other end with a hook intended to hook the successive loop and a pivoted tongue which has an

end which is concave or spoon shaped, acting to cover the hook when a loop is drawn across the preceding loop.

In order to facilitate the operation of darning, the hook is preferably provided at its forward end with a point or projection similar to that of the hook proper of a needle of the "crocheting type", and the tongue is also preferably provided at its free end with a point or projection to permit it to pass more readily between the fallen loops arranged like the steps of a ladder and to form between these ends, when the tongue is closed, a V-shaped opening serving to facilitate the passage of the new loop between these ends.

The sleeve of the implement may be secured to the latter as in the case of the so-called "crocheting" implement and provided with a protecting element. The implement may further pivot about a sleeveprovided with a spring and similar to the sleeve of a pen knife so that it is possible to fold it to protect the hook and tongue and to carry it in the pocket with complete safety. This arrangement may further be mounted either so as to slide in a tube like a pencil holder, or on a stopper provided with two ends and arranged to be adapted to a tubular support which serves as a sleeve when one of the ends is inserted therein and as a protecting case when it is reversed and the implement is introduced into the interior of the tube.

The invention is shown by way of example in the attached drawings wherein:

Figures 1 and 2 show, on a large scale, different forms of the improved darning device;

Figure 3 is an elevation, seen from the left, of a detail of the device shown in Fig. 2, the tongue being removed;

Figure 4 is an elevation, seen from the right, of the device of Fig. 2, the tongue likewise being removed; 3397

Figure 5 is a view of the interior of the tongue shown in Fig. 2;

Figure 6 is a longitudinal section showing the device provided with a demountable sleeve intended to inclose it when it is not in use;

Figure 7 is an elevation of the device of Fig. 6 and shows the implement reversed, the sleeve serving as a case;

Figures 8 to 12 are diagrammatic sections showing a damaged piece of fabric the threads of which are arranged like the rungs of a ladder, as well as some of the following ranges of the fabric so as to make clear the method of using the arrangement according to the invention. 3398

The simplest form of construction, shown in Fig. 1, comprises a rod *a* provided with a sleeve *b*, a hook *c* and a pivoted tongue *d*. The pivoted tongue *d* is provided with an end *e* which is concave or spoon-shaped, adapted to cover the point of the hook *c* and this hook is pivoted upon a gudgeon *p* in the interior of an opening *h* formed in the rod *a* and similar to that shown in Fig. 3.

In the construction of Figs. 2 to 5 the hook *c* is provided at its forward end with a point *f* serving to facilitate the introduction of the said hook between the threads forming the rungs of the ladder to be darned. The pivoted tongue *d* is likewise provided at its free end with a point *g* serving to facilitate its introduction between the threads and to form a V-shaped opening *x* between the said point and the point *f*, for the purpose of facilitating the passage of the following (next) thread of the ladder between the tongue and the hook. 3399

3400 In Fig. 2, the hook *a* of the device is pivoted upon a sleeve *b* provided with a spring, the implement closing in the manner of a pen knife.

In place of providing the arrangement with a fixed or pivoted sleeve, its rod *a* may be provided with a double ended stopper *i*, one or the other of these ends being capable of being inserted into a tubular support *j* which serves either as a sleeve, as shown in Fig. 6, or as a protecting case as shown in Fig. 7, according to which end of the stopper is introduced into the support.

When the darning device is provided with a hollow demountable sleeve, the latter may be adapted
3401 to hold supplementary hooks having different sizes and intended to be used for darning fabrics of different meshes.

This implement is used as follows: The pivoted tongue *d* is folded back against the hook *c* as shown in full lines in Figs. 1 and 2, and the folded-up device is then passed below the thread 1 forming the last rung of the ladder to be darned (Fig. 8), this operation being facilitated by the points *f* and *η* (Fig. 2). Then the hook and the tongue are pushed forward sufficiently to permit the hook to enter into contact with the second thread 2 which passes between the tongue and the hook until the
3402 instant when it is hooked by the latter (Fig. 9). This operation is also facilitated by the two points *f* and *g* forming between them the V-shaped opening *x*. Then the implement is withdrawn from below the first thread of the ladder (this thread forming a loop anew), the implement engaging therewith the second thread 2 which also is given the form of a loop (Fig. 10). Then the implement is pushed forwardly across the loop 2 which opens the tongue *d* (Fig. 11) upon which it passes.

Then the implement is withdrawn, forcing the loop to pass under the rear face of the tongue *d* (Fig. 12) so as to bring the implement back to the position of Fig. 8. The loop 2 then slides along the rear face of the tongue *d* up to a point located a small distance from its free end. Then the third thread 3 is caused to pass between the hook and the tongue up to the instant where it is hooked by the hook *c*, in the same way as the thread 2 was previously hooked and then the third thread is drawn across the last loop which then passes above the end of the tongue and of the hook. The device is then pushed upwardly anew until the third thread 3, which has now become a loop, forces the tongue *d* to occupy the position shown in Fig. 11, thereby causing this loop to pass above the end of the open tongue. Then the implement is withdrawn anew, forcing the new loop to close the tongue and to move toward its forward end without passing above said end. In this position, the fourth thread 4 is caused to pass between the hook and the tongue until this thread will be hooked by the hook *c*, then it is drawn across the last loop formed and the cycle of operations described is repeated until all the loops have been gathered and the last secured in any suitable way, for example, by means of an ordinary needle and thread. 3403 3404 3405

SUMMARY:

The invention comprises:

1st. An implement for darning stockings and other articles of knitted fabric, this implement comprising a rod provided at one of its ends with a hook intended to hook itself on the disengaged loops, arranged like the rungs of a ladder, a piv-

3406 oted tongue provided with a concave portion intended to engage against the end of the hook and to close the latter, with the object of retaining a released thread which has been gathered and to facilitate its passage across the corresponding loop of the preceding series of loops, and a sleeve adapted to the other end of the rod to permit operating the implement.

2nd. An implement for darning as under 1st, characterised further by one or the other of the following points, applicable separately or in combination:

3407 (a) Between the adjacent ends of the hook and the tongue there is provided in their closed position, a V-shaped opening intended to facilitate the passage of a released thread between these ends;

(b) There is provided on the front of the hook on the one hand and on the free end of the tongue on the other hand, a point or projection intended to facilitate their passage between the threads forming the rungs of the ladder.

ORTEGA
By Attorneys:
Brandon Fréres

3408

Defendants' Exhibit L-50. 3409

I certify this to be a true copy.

A. J. MARTIN
Acting for Comptroller.

H. D.
—1 Oct 1929

(Seal of the Patent Office)

PATENTS AND DESIGNS ACTS, 1907 AND 1919.

IN THE MATTER OF an Application by John Wall Pogson for Letters Patent No. 168,817, dated 18th January, 1921 3410

and

IN THE MATTER OF an Opposition by Jose Marcel Ortega to the grant of a Patent thereon.

DECISION.

The grant of a Patent is opposed on the ground that the invention has been published in the complete specification deposited pursuant to application No. 19115 of 1903, which is an application made in the United Kingdom within fifty years next before the date of the application for the patent the grant of which is being opposed. 3411

At the Hearing, Mr. Eric Bousfield appeared as Counsel for the Applicant and Mr. Whitehead, with Mr. Sandeman, as Counsel for the Opponent.

The Applicant's invention is a method of repairing knitted goods and a tool for use in the method.

At the Hearing, Mr. Bousfield suggested an amended form of claim and the case was argued

3412 *Defendants' Exhibit L-50.*

upon that basis. The statement of claim, amended as Mr. Bousfield proposed, is:

> (1) A method of repairing knitted goods in which the thread or yarn is broken with the consequent formation of a "ladder", consisting in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion by means of a latch knitting needle of the size and design used in knitting machines and securing the last loop
> 3413 formed at the end of the ladder with the adjacent portion of the knitted fabric by a piece of thread or yarn, substantially as set forth.
>
> (2) Means for repairing knitted goods according to the method in Claim 1 comprising a latch knitting needle of the size and design used in knitting machines mounted in a handle and provided with a removable damp proof protective casing.

The prior specification, 19115/03, describes the use of a latch needle, fitted with a handle, in the making of rugs and mats by hand. The needle is
3414 used to pull short lengths of wool through a canvas which forms the backing of the mat. Counsel agreed that the latch-needle claimed by the Applicant was, in form and action, the same as that described in Specification 19115/03; but some difference of opinion existed as to the relative sizes of the needles and the functions that were performed by them. As to size: the needle of 19115/03 is described as adapted for use with close as well as open canvas; the Applicant's needle is described as for use with any knitted fabrics, although the

 3415

use with fine makes of fabric is emphasised; consequently some of the needles used for rug-making would be of the same size as some of those used by the Applicant and I am satisfied that the two needles cannot be clearly distinguished by consideration of their size. As to function: The action of the needles being the same, their functions differ only so far as the materials being manipulated differ, and do not distinguish the needles themselves from one another.

In considering the method of repair which is claimed, I am influenced by a consideration of what 3416
is common knowledge in the making of knitted fabrics.

The Applicant's invention is a method of repairing "ladders" in knitted goods. Ladders occur in manufacture, when a stitch is dropped, and in use, when a thread is broken, and are due to the straightening out of threads that were previously looped together. In the manufacture of knitted goods, whether by hand or machine, it is admittedly old to correct the fault by catching the loop at the bottom of the ladder and concatenating in succession that loop and the strands forming the rungs of the ladder. This is merely to repeat the 3417
operation performed by the latch-needle in the case of goods being knitted by machine. Mr. Bousfield admitted that it is common practice to pick up the dropped stitch with the plain end of a knitting pin and did not seriously contend that it had not been done with other tools. He urged that, although the picking up of the stitches in repairing a ladder in finished goods is identical with that operation when performed during manufacture, the difference between the repair of goods that have been

3418 *Defendants' Exhibit L-50.*

used and the correction of a fault in goods in the making, more particularly in the case of the fine fabric of silk stockings, is sufficient to require invention to select the proper tool with which to perform the operation.

The specification, however, does not limit the invention to used goods or to goods of the fineness of silk stockings, but claims it in the broad application to all knitted goods; and I am unable to agree that there is any such difference between the processes required respectively for finished and for
3419 unfinished goods.

Further, when I seek for the reason why a latch-needle is selected by the Applicant as the proper tool for his process, I find that the reason is just that reason for which the latch-needle is selected instead of a plain hook as the tool in a knitting machine: and in the Applicant's specification it is, in effect, admitted that the use of a latch-needle in his method is such as to require no alteration in either the form or action of the latch-needle.

Accordingly, I conclude that the invention the Applicant seeks to protect is an old method carried out by means of an old instrument. In this, he has made no contribution to the art and to grant him
3420 a monopoly for it would be in hurt of trade and generally inconvenient, to use the language of the Statute of Monopolies. When what is admittedly old is subtracted from the invention as described and claimed, there is nothing left for which a patent could properly be granted.

I refuse therefore to grant a patent on the application and I award the Opponent, Jose Marcel Ortega, the sum of 6 guineas in respect of his costs and direct the said sum to be paid by the Appli-

Defendants' Exhibit L-50. 3421

cant, John Wall Pogson. In the event of application being made to have this Order made a Rule of the Court, I award the said Jose Marcel Ortega a further sum of 3 guineas to be paid by the said John Wall Pogson; but no such application is to be made until the expiration of fourteen days from the date of this Order.

Dated this 24th day of March, 1922.

W. TEMPLE FRANKS
Comptroller-General. 3422

3423

1142

DEFENDANT'S EXHIBIT V 60

1142

1367 Topeka Corp.

5	6	7	8	9
16	19	22	25	28

1502 Topeka Corp

5	6	7	8	9
16	19	22	25	28
7	9	12	15	17¾

Weight

1143

1143

411 — Copies Corrg

5	6	7	8	9
16½	19½	22½	25½	28½

9	12	15	18½	22	Weight

1960 Copies Corrg

5	6	7	8	9
16½	19½	22½	28½	28½

10½	13½	17	20	26

Weight

1144

1144

Ruffled First
binding Machine
1901
Second Machine 1902
Patented By H Tranter

Fabric for
Waldman Rollers
1910

Needle to pick
drop stitches for
fine gauge seamless
knitting guides on right
side April 1910

Defendants' Exhibit W-61. 3433

Ladies
Full Fashioned Silk
Hosiery and Glove Silk
Underwear

KRAEMER HOSIERY COMPANY
Nazareth, Penna.

March 23, 1931.

Milanese & Tricot
Fabrics
Established 1882 3434

TO WHOM IT MAY CONCERN

This is to certify that Mrs. Jennie Rohrbach has been steadily employed by Kraemer Hosiery Company from May 10, 1920 to date.

KRAEMER HOSIERY COMPANY
By A. G. SCHMIDT
President

Sworn and subscribed before me this 24th day of March, A. D. 1931. 3435

CHARLES W. K. SHAFER
Notary Public
Commission expires 2-19-33

(Seal)

3436 **Defendants' Exhibit CC.**

Hudson, N. Y. Athens, N. Y.
West Sand Lake, N. Y. Poestenkill, N. Y.

THERMO MILLS, INC.
Manufacturers of
(Trade Mark)
Sport Coats and Sweaters
Knitted Cloth Fabrics—Wool Spun Yarns

Hudson, N. Y.

March 16, 1931.

3437

To Whom It May Concern:

This is to certify that Glen Hitchcock has been in our employ for about 15½ years as knitter and during that time has been reknitting or catching drop stitches on the knitting machines, and has been using an ordinary pivoted latch machine needle for the same.

Yours truly,

THERMO MILLS, INC.
J. R. McLAREN
Treasurer.

3438

J. R. McLAREN
AEM

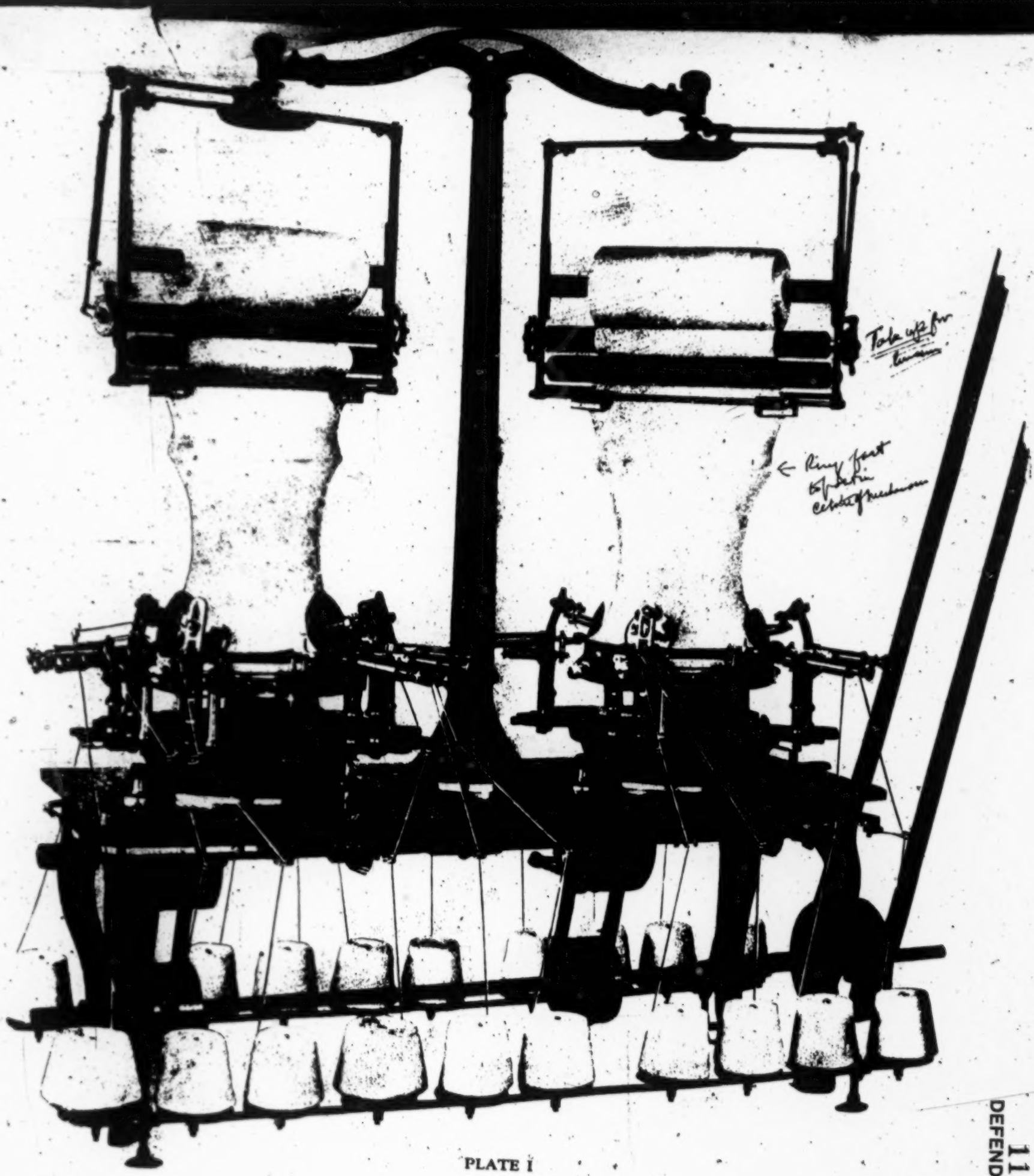


PLATE I

TOMPKINS BROS. CO.

Established 1845

CIRCULAR SPRING NEEDLE
KNITTING MACHINES

SYRACUSE, N. Y.

1147 1147
DEFENDANT'S EXHIBIT D D

1148

1148

Defendants' Exhibit HH. 3445

PARAMOUNT RUN MENDER

Directions

1. Stretch run over thumb with fingers curved, or over egg-cup.
2. Open latch.
3. Catch last loop with hook.
4. Stretch run lengthwise tightly.
5. Push needle half-way thru loop.
6. Raise needle and latch up first hole until latch close over next thread and hooks it. 3446
7. Pull cross-thread thru loop and repeat No. 5.
8. Tie last loop with thread inside.

S. SHANOWITZ, Distributor
PRICE 50c 4319-10th Ave. B'klyn, N. Y.

3447

1150

1150

DEFENDANT'S EXHIBIT 11

E

CLASS A XXc. No. 133620

Library of Congress, to wit:

Be it remembered.

That on the eighth day of December, 1902, J. E. Gearhart and Son, of Clearfield, Pa, have deposited in this Office the title of a Book

the title of which is in the following words, to wit:

Instructions for using Gearhart's Improved Family Knitting Machine.

J. E. Gearhart & Son, Clearfield, Penna.

the right whereof they claim as authors and proprietors in conformity with the laws of the United States respecting Copyrights.

Office of the Register of Copyrights,
Washington, D. C.

Herbert Putnam
Librarian of Congress

By

Thorvald Solberg
Register of Copyrights.

I hereby certify that the foregoing is a true copy of the original record of copyright. In witness whereof, the seal of this Office has been hereto affixed this thirtieth day of January, 1931.

Wm. Brown
Register of Copyrights

Copyright Office of the United States of America,
Washington, D. C.

LIBRARIAN OF CONGRESS COPYRIGHT OFFICE UNITED STATES OF AMERICA

1151

COPYRIGHT OFFICE OF THE UNITED STATES OF AMERICA

LIBRARY OF CONGRESS, WASHINGTON

I hereby certify that the attached photostat sheets are copies of outside cover, inside title page, and page 11 made directly from one of the deposited copies filed in this Office December 8, 1905 of the book entitled "Instructions for Using Gearhart's Improved Family Knitting Machine" for which copyright registration was made under Class AXXC No. 133620 of December 8, 1905 in the name of J. E. Gearhart & Son, Clearfield, Pennsylvania, as owners of the copyright.

In Witness Whereof the seal of this Office has been affixed this thirtieth day of January, 1931.

Acting Register of Copyrights

1152

INSTRUCTIONS

FOR USING

Gearhart's Improved

Family Knitting Machine.

Patented April 1, 1890. Improved July 26, 1892. Later Improved July, 1904.

MANUFACTURED BY

J. E. GEARHART & SON,

CLEARFIELD, PENNA.

LIBRARY of CONGRESS
Two Copies Received
DEC 8. 1905
Copyright Entry
Dec. 5. 1905
CLASS A XXc. No
153620
COPY B.

GEARHART'S

IMPROVED FAMILY KNITTING MACHINE.

Consult this Page Before Removing the Machine from the Box.

Remove the machine by taking out the cross piece and loosening the thumb screw which holds the machine to the bottom of the box. Fasten the machine to a table, window sill or any firm support. Screw the upright standard for yarn guide into the back part of the machine, with yarn guide 10 on the top of the standard. (See cut of machine on first page of cover.) Place the wooden bobbin having some yarn on it on the post at the back part of the machine. The yarn should not be any coarser than that on the machine when you receive it. Pass the end of the yarn through the hole in the guide at A, under the check B, and C, down through the hole at D, through the loop E and the hole in carrier G. Leave the end of the takeup spring at F free as it is only used when knitting heel and toe. Wind all the slack yarn on bobbin, then hang the weight on the hook of the set-up inside the cylinder which draws the work down. See that the latches of the needles are all down.

Put the crank wheel on with the crank up directly in front of the cam. The crank wheel is held in position by the washer and screw H.

Put the left hand on the weight and press down gently. With the right hand turn the crank forward slowly, and if the parts are in proper position the machine will begin to knit. If the stitches should run with the needles, with the left hand press down gently on the weight until the stitches are drawn down and lie on top of the cylinder. After you have knit some and become familiar with the operation of the machine, break the yarn and turn the handle slowly and hold your left hand under the weight while the work is run off the needles. This latter should not be done, however, until you have time to read the instructions, set up the work on the machine and knit according to instructions on the following pages. Before you knit any more, read the next page, and without any work on the machine, learn how to lift needles and reverse the machine by running it backward and forward. (See page 15.)

and when you start to knit the plain there is no imperfect stitches but a continuous web. In ribbed work always put the end on the needles that came from the machine last. The other end of the ribbed will not ravel out.

CHILDREN'S STOCKINGS, PLAIN AND RIBBED.

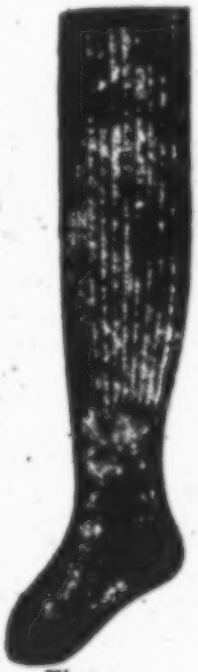


Fig. 9.

With the 56 cylinder and ribber, beautiful and excellent children's stockings can be made with the leg knit ribbed, and the ankle and the foot plain.

No work is so fine as ribbed work, yet children's stockings and leggins can be knit circular web by takin- every other needle out either the 72 or 88 cylinder; knit around, follow the same principle as for large stockings and leggins.

BABY STOCKINGS.

Baby stockings can be knit on the 38 cylinder by taking out every other needle and using fine yarn.

DOUBLE HEEL.

To knit the double heel and toe, use coarse yarn and a slightly longer stitch; or add fine cotton to the knitting yarn.

SUSPENDERS.

Knit flat web with the required width, or with zephyr or Shetland yarns. Bind the ends and add the necessary button-hole strips at the ends.

MENDING BROKEN STITCHES.

This is done with one of the needles of the machine, either in the machine or after the work is out. The needle is used as a crochet needle. You hook it in the dropped stitch and push it far enough through to bring the stitch below the latch; then draw it back catching the next cross-thread above in the hook above the latch; continue to draw the needle back until a new stitch is formed; proceed in this way until all the dropped stitches are knit in. If the mending is done out of the machine, you will tie the dropped stitch with a short piece of yarn and draw the ends inside the web.

When reversing the machine with work on, always lift up at least 20 needles at the back and turn the machine until the raised needles are over the cam in front of the machine. After reversing, if you wish to continue to knit, the raised needles must all be

Defendants' Exhibit JJ.

DOMINION OF CANADA,
Patent Office.

CERTIFIED TO BE a true and correct copy of the certificate of registration of a Copyright as registered in Folio 41155, of Register of Copyrights No. 128, in the name of Auto Knitter Hosiery (Canada) Company, Limited, on February 24th, 1923.

AS WITNESS the seal of the Patent Office hereto affixed at the City of Ottawa in the Dominion of Canada this 30th day of July, in the year of our Lord one thousand nine hundred and thirty.

CHAS. E. RICHARD
(Seal) Commissioner of Patents

CANADA

On the Application of

AUTO KNITTER HOSIERY (CANADA) COMPANY LIMITED,
of the City of Toronto, Province of Ontario,

in virtue of "THE COPYRIGHT ACT" and the requirements of the said Act having been complied with the COPYRIGHT of the instruction book entitled:

"THE AUTO KNITTER INSTRUCTION BOOK"
Eighteenth Edition,

is hereby registered in this Folio 41155, of REGISTER OF COPYRIGHTS, No. 128, kept at the Patent and

3466 *Defendants' Exhibit JJ.*

Copyright Office to secure to the Proprietor of the said instruction book,

AUTO KNITTER HOSIERY (CANADA) COMPANY LIMITED,

all the privileges granted by the said Act.

Patent and Copyright Office,
Copyright Branch,

Ottawa, this 24th day of February, A. D. 1923,

3467 (Signed) GEO. F. O'HALLORAN,
Commissioner of Patents,

(Seal)

3468

Defendants' Exhibit KK. 3469

DOMINION OF CANADA,
Patent Office.

CERTIFIED TO BE a true and correct copy of the certificate of registration of a Copyright as registered in Folio 31083, of Register of Copyrights No. 108, in the name of William Alexander Griffith, on December 13th, 1915; together with copy of assignment of said Copyright by William Alexander Griffith to Auto-Knitter Hosiery, (Canada,) Company, Limited, dated October 25th, 1916.

3470

AS WITNESS the seal of the Patent Office hereto affixed at the City of Ottawa in the Dominion of Canada this 30th day of July, in the year of our Lord one thousand nine hundred and thirty.

CHAS. E. RICHARD
(Seal) Commissioner of Patents

CANADA

Asst. No. 711,

3471

On the Application of

WILLIAM ALEXANDER GRIFFITH, of the City of Toronto,
Province of Ontario.

in virtue of "THE COPYRIGHT ACT" and the requirements of the said Act having been complied with, the COPYRIGHT of the book entitled:

3472 *Defendants' Exhibit KK.*

INSTRUCTION BOOK
FOR THE CELEBRATED AUTO-KNITTER
RIBBER KNITTING MACHINE
Eighth Edition,

is hereby registered in this Folio 31083, of REGISTER OF COPYRIGHTS No. 108, kept at the Department of Agriculture to secure the Proprietor of the said book,

WILLIAM ALEXANDER GRIFFITH,

all the privileges granted by the Act.

3473 Department of Agriculture,
(Copyright Branch)
Ottawa, this 13th day of December, A. D. 1915.

(Signed) GEO. F. O'HALLORAN,
(Seal) Deputy of the Minister of Agriculture.

THIS INDENTURE made the 25th day of October A. D. 1916.

BETWEEN:

3474 WILLIAM ALEXANDER GRIFFITH, of the City of Toronto, in the County of York, Assignor
OF THE ONE PART.

– AND –

AUTO-KNITTER HOSIERY, (CANADA) COMPANY LIMITED, of the City of Toronto, Assignee,
OF THE OTHER PART.

WHEREAS the said William Alexander Griffith is the Proprietor and Holder of the Copyright of the Book entitled "Instruction Book for the celebrated

Defendants' Exhibit KK.

Auto-Knitter Ribber Knitting Machine", which Copyright was registered on the 13th. day of December, 1915, on Folio 31083, Register 108, and has agreed to assign the same to the said Auto-Knitter Hosiery (Canada) Company, Limited). 3475

NOW THIS INDENTURE WITNESSETH that in pursuance of the said recited agreement and in consideration of the sum of One Dollar paid by the said Auto-Knitter Hosiery (Canada) Company, Limited) to the said William Alexander Griffith (the receipt whereof is hereby acknowledged), the said William Alexander Griffith as beneficial owner hereby assigns unto the said Auto-Knitter Hosiery (Canada) Company, Limited) all the Copyright and other rights in the said Book which is or are subsisting both in this Country or elsewhere for the residue of the term or terms thereof. 3476

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals.

W. A. GRIFFITHS

SIGNED, SEALED and DELIVERED
In the presence of: 3477

D. HENDERSON

(Seal)

3478 *Defendants' Exhibit KK.*

COUNTY OF YORK. }
To Wit: }

I, DAVID HENDERSON, Solicitor of the City of Toronto, in the County of York, make oath and say:

1. That I was personally present and did see the within instrument and duplicate thereof duly signed, sealed and executed by William Alexander Griffith, one of the parties thereto.

3479 2. That the said instrument and duplicate were executed by the said party at Toronto.

3. That I know the said party.

4. That I am a subscribing witness to the said instrument and duplicate.

D. HENDERSON

Sworn before me at the City of Toronto, in the County of York, this 25 day of October, 1916.

3480

GEO. K. ROONEY
A Comm. &c.

Defendants' Exhibit KK.

3481

(On Back)

DATED day of , 1916.

3482

WILLIAM ALEXANDER GRIFFITH.

—AND—

AUTO-KNITTER HOSIERY (CANADA COMPANY, LIMITED).

3483

— AGREEMENT —

McMASTER, MONTGOMERY, FLEURY & Co.

3484 *Defendants' Exhibit KK.*

ASSIGNMENT.

No. 711

Copyright No. 31083 "Instruction Book for the Celebrated Auto-Knitter Ribber Knitting Machine."

3485

W. A. GRIFFITH

TO

AUTO-KNITTER HOSIERY, (CANADA) CO., LTD.

Recorded in the Copyright and Trade Mark Branch, Department of Agriculture, at Ottawa, this 28th day of October 1916.

GEO. F. O'HALLORAN
Deputy of the Minister of Agriculture.

3486

P. E. A.

Defendants' Exhibit LL. 3487

A[1]

COPYRIGHT OFFICE
OF THE UNITED STATES OF AMERICA

LIBRARY OF CONGRESS, WASHINGTON

CERTIFICATE OF COPYRIGHT REGISTRATION

THIS IS TO CERTIFY, in conformity with section 55 of the Act to amend and Consolidate the Acts respecting Copyright, approved March 4, 1909, as 3488
amended by the Act approved March 2, 1913, that Two copies of the BOOK named herein have been deposited in this Office under the provisions of the Act of 1909, together with the affidavit prescribed in section 16 thereof and that registration of a claim to copyright for the first term of twenty-eight years from the date of publication of said book has been duly made in the name of the claimant Auto Knitter Hosiery Co. Inc., 821 Jefferson St., Buffalo, N. Y. title, The Auto Knitter Instruction Book. By Oscar F. C. Kunau, of United States, Twelfth Edition, date of publication September 20, 1918; affidavit received October 18, 1918; two copies 3489
received October 18, 1918; registration made as Class A, XXc., No. 507097.

WM. L. BROWN
(Seal) Acting Register of Copyrights

3490 *Defendants' Exhibit LL.*

UNITED STATES OF MEXICO

SECRETARY OF INDUSTRY, COMMERCE and WORKS
DEPT OF PATENTS AND TRADE MARKS
PATENT OF INVENTION

No. 21529

To all those who might see the present, be it known:

That the C. President of the Republic, in view of
3491 the fact that Mrs. Ana H. deMarr has complied with the requirements which the law establishes, has granted the patent with exclusive privilege for 20 years dating from the 2nd of June 1922 at 11 hours 14 minutes m, for the invention which the undersigned has made consisting of a method and instrument for mending woven fabric of net (mesh), mesh (knit) and woof of cloth, such, as stockings, socks, sweaters, jersey garments, and the like.

And in order that it is evident, we extend the present title: with description of the invention.

3492 Mexico, D. F. 12th of June 1922

To all whom it might interest:

Be it known, that I, Ana H. de Marr, without profession, citizen of the United States of America, residing in Mexico City, D. F., and having elected as a place to receive mail or communications in said Mexico City, the offices of Mr. C. H. M. y Agramonte, Avenida del Cinco de Mayo, No. 1, have invented a new method and instrument useful for mending woven fabric of net (mesh) mesh (knit)

and woof of cloth, such as stockings, hose, sweaters, jersey garments, and the like of which invention the following is a complete description.

This invention consists, in general terms, of a new method of mending the threads or the parts damaged or consumed of textile goods, woven fabric of net, knit (mesh) and woof of cloth, in a rapid and simple manner, by means of an instrument which forms part of this invention and which is represented in the sketches which accompany it.

It is well known that a hole or a very slight break (tear) in stockings, socks and in general, in under- 3494
wear, if not promptly mended in an adequate manner, quickly gets larger and frequently results in the total destruction of the garment, often producing a considerable loss, as happens when it is a matter of silk clothing or garments.

By means of my invention, the mending or repairing of such garments of cloth, can be done quickly, the garments returned to their primitive state so far as their utility and appearance are concerned.

The desired objectives are attained by means of the method described above and by the use of the instrument seen in the sketches, in which:

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Fig. 1 is a view of the instrument, with the latch of the hook open.

Fig. 2 is a similar view, with the latch of the hook closed over the point of the latter, and

Fig. 3 is a detailed view of the latch.

With the object of showing completely and clearly the mending instrument and its details, its size is much exaggerated, the true width (broadness) of the hook with the latch closed being approximately 1 millimeter at most, so that in the sketches it is represented as if it had a width of 8 millimeters.

3496 *Defendants' Exhibit LL.*

The general form of the instrument such as is represented in the sketches resembles more or less instruments already known, as for example, hooks for weaving and the like, although the instrument illustrated in the sketches never has been used for the uses and purposes mentioned in this specification before I adapted it and used it for the purposes indicated, and consequently remains clearly understood within the spirit and intention of Part III of Article 2 of the Patent Laws, moreover the method of mending here mentioned by means of said instrument is entirely new.

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In the sketches, 1 indicates the body of the instrument, which can be of any adequate metal, as, for example, iron, steel, and similar metals; 2 indicates the handle, which can be of wood, celluloid or other material; 3, indicates the hook which terminates in point 4; 5 is the latch, which is represented more in detail in Fig. 3 and which is provided at its broader extremity with a perforation 6 in order to allow that 6^1 be secured in such a manner that it can oscillate in a groove which is not represented, in the inner edge of said instrument, and which is extended from 7 to 7^1 along the inner side of the instrument mentioned. The latch

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5 ends in a point very slightly widened and excavated for example in point 8, in such a manner that the point in the hook 4 remains completely covered and protected by said latch when it is closed. In form, the body of the instrument is flattened (even) up to a point adjacent to 7^1, from which, up to the extremity of the hook 4 is circular in form, slendering itself into a conical form until reaching a sharp point in 4. The handle can be of any design desired, this simply being a matter of taste.

To simplify a description of the operation of my method and of the instrument which forms a part of it, I shall designate the transverse or lateral threads of the cloth which is to be mended by "warp" and the perpendicular or longitudinal threads by "woof" and I will also limit the description to cloth or pieces of material of woven fabric, inasmuch as the mends made in the other classes of cloth mentioned before are practically the same with slight modifications which will be presented as individual cases to the operator.

In the practical application of this invention, the hook 3 with the latch 5 open is introduced in the place where one is to begin to make the mend, under the first two threads of the warp of the part which is to be (or, is being) mended or across the slip knot of the woof and of the first thread of the warp and clasping said threads, resting (stopping) in 7 the point 8 of the latch 5. Then the hook is withdrawn far enough to allow that the first of the two threads of the warp caught with the hook, or the slip knot, pass underneath the point of the open latch 5, thus closing the aperture of the hook at the continuation of the withdrawal and permitting that said first thread of the warp, or the slip knot of the thread of the woof, pass over the hook to form a slip knot at the *rededor* (more or less—round-about) of the second thread of the warp which is drawn up by said hook across said slip knot. The hook 3, still holding the second thread of the warp which has formed a slip knot, is reinserted to pick up again the third thread of the warp, thus automatically opening the latch 5, the hook 3 then retreating partially as above, before still going under ? (or knitting under?) subjecting the third thread of the warp and permitting the second thread of the

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Note: *al rededor* is given in dictionary as round-about, little more or less and thereabout.

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3502 *Defendants' Exhibit LL.*

warp to form a slip knot thereabout of said third thread of the warp which is now kept down (or put under?) by said hook, continuing the same operation to terminate the mend of the damaged part or broken part of the garment or cloth.

According to the previous description of the method and of the instrument for its use, it is believed that the advantages of the present invention will be easily understood and will be appreciated by those experienced in the art, not only for its great utility but at the same time for the simplicity manifested by the invention and for the ease with which it can be put in practice.

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As much in the method as in the instrument, changes of minor importance can be made without getting away from the spirit and intention of the invention.

CLAIMS

1. In an instrument for putting in practice a method of mending (knitting) clothes or articles of woven fabric of mesh (net) of mesh or knit, a hook provided with a round or curved part made in conical form, a point flattened on both sides and a groove at the inner edge of said point adjacent to the curved part of said hook, in order to receive an extremity of a latch, one of whose extremities is secured in said groove in such a way, that it can be moved, and the opposite extremity is adapted to stop over the point of said hook, covering it at its outer side, substantially as is described.

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2. The utilization of an instrument having the form of a hook, provided with a latch which moves freely, and which is secured by one of its extremi-

ties in a groove made at the point of said hook, the opposite extremity being provided with a cavity and for the purpose of covering the outer side of the point of said hook with the object of repairing cloth of woven fabric or fabric of other classes, pulling threads of the warp of the cloth or garment to form slip knots or knots more or less of the consecutive threads of said warp until said repairs are terminated.

3. In a method of repairing damaged parts or breaks in the cloth or garments of woven fabric, 3506
mesh or knit, which consists in putting the first two threads of the warp of the cloth under at the point of beginning the necessary mends, or the slip knot of the woof or arranged longitudinally threads of the cloth and the following thread of the warp with the hook specified and described in parts 1 and 2 of the claim, said hook being introduced or inserted to go under (put under? Keep down?) said threads while the latch is open, said hook being inserted sufficiently to allow the extremity of the open latch to catch the slip knot or the first thread of said warp, said hook then being partially withdrawn and letting said latch to close over the point of the hook and continuing to withdraw the hook 3507
to permit said slip knot or first thread to pass over the end of said hook and of the second thread, which is pulled across the slip knot so formed by the first threads or the slip knot securing it, and the hook still being put under (going under?) said second thread is introduced to catch up the third thread and pull it across the slip knot of said second thread which has closed the latch as described before in the case of the first slip knot or thread, this opera-

3508 *Defendants' Exhibit LL.*

tion continuing until the mend is terminated, as substantially as I have described.

4. A method and instrument to be used in combination to make mends by hand in garments of woven fabric, mesh or knit, as described up to now, and which consists in forming by means of the instrument described in parts 1 and 2 of the claims a series of slip knots interwoven in said cloth and in utilizing the threads of the warp or the woof of the cloth, or both, all substantially as has been described and manifested.

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In testimony of which I sign the above description and claims in the City of Mexico, D. F., today, 2nd of June, 1922.

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DEFENDANT'S EXHIBIT M M

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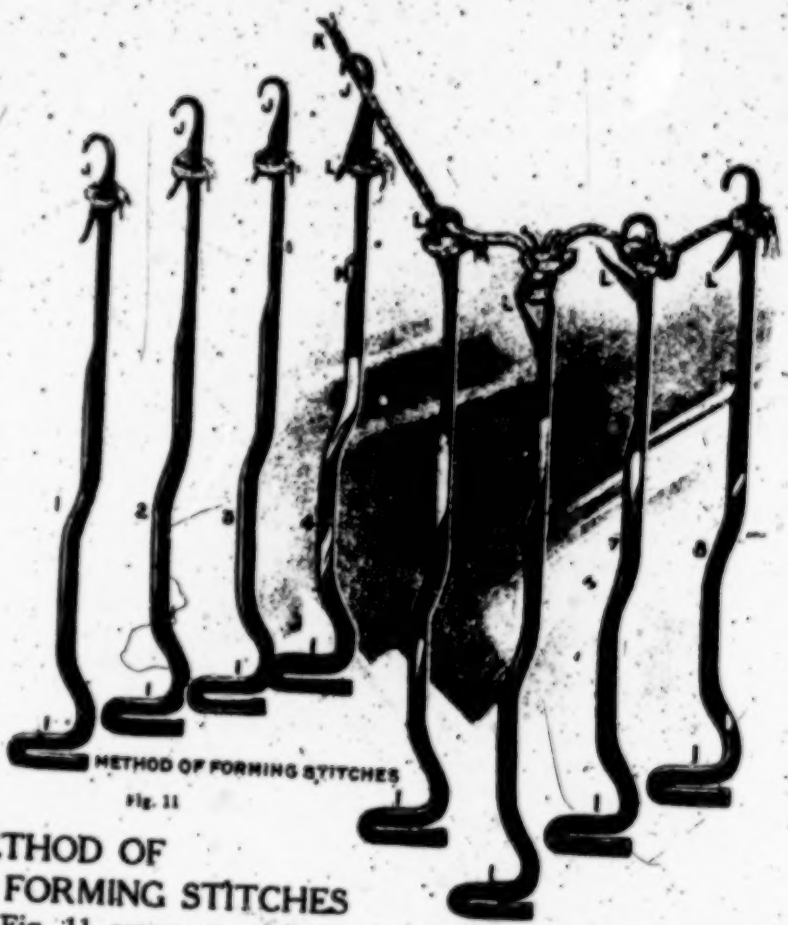

METHOD OF FORMING STITCHES

Fig. 11

METHOD OF FORMING STITCHES

Fig. 11 represents eight needles in action in the machine. The shadow needles, 1, 2 and 3, represent the needles before they receive the yarn from the carrier. Nos. 4, 5, 6, 7 and 8 represent needles in the act of forming stitches. No. 4 shows the needle at the highest, and No. 6 at the lowest points at which the needles travel in the cylinder. Nos. 1 and 8 show the needle in its regular or idle position. The needle is raised up by the upthrow cam as Nos. 1, 2, and 3, in this illustration far enough to allow the stitch, which is on the needle, to pass below the latch as No. 4 and into the hollow M. The needle is then at its highest point and the latch (L) is freed and the needle starts to descend. At this point the yarn (K) is fed in the hook of the needle and as the needle descends the stitch, which was in the hollow M, raises back of the latch (L) and closes it, leaving the yarn (K) in the hook. The needle descends to its lowest point in the cylinder as Nos. 5 and 6, and the stitch, which was in the hollow (M), passes over the hook of the needle and into the cylinder. No. 6 shows the needle drawing the length of stitch. It will be remembered that the further down this needle descends into the cylinder, the longer will be the stitch. From this point the needle raises to its regular position as No. 8, slipping the newly formed stitch over the hook but holding it. This process is repeated at each revolution of the machine. The method of forming rib stitches is the same except that the needles lie in a horizontal position.

NOTE—The letters and figures in figure 11 apply to this paragraph only.

form, and press it with a hot iron. This gives it a perfect shape and prevents shrinking, but the iron must not be too hot to prevent scorching.

Specialties should be laid out flat on a table or board; then a wet cloth having been laid upon them, they should be pressed with a hot iron.

MATING SOCKS

Care must always be taken that the two socks or stockings in a pair are knitted at the same tension, and that they contain exactly the same number of rounds in each part, otherwise they will not "pair" correctly when finished.

PICKING UP SLIPPED STITCHES.

If a stitch slips off the needle from any cause it will generally, if the weights are on, run down through a number of rounds. The weights should be taken off immediately and the stitch picked up as follows:

Take a spare cylinder needle and pass this down hook end first, between the work and the cylinder, with the hook pointing inwards towards the work. Pass the left hand up inside the cylinder from underneath the Machine, take hold of the work and bring the dropped stitch within the reach of the needle hook, get the stitch onto the hook, being careful not to split the wool, slide the needle through the stitch until the stitch is behind the latch, then turn the needle a quarter turn to the right, pull it slowly back until the latch stands out almost straight but not quite, the stitch still being behind it. Then work the latch up behind the yarn immediately above the stitch, this done proceed to draw the needle slowly back and the latch will take the yarn inside the hook, allowing the old stitch to slide over and thus forming the new one. Having now a new stitch inside the hook, slide the needle through the work again until the stitch is behind the latch, and repeat the whole operation until you get the stitch to the top, when it must be placed on its cylinder needle.

If the ribber is in use when the stitch slips off the Cylinder needle, the ribber needles must first be taken out, as directed on page 32, and the complete ribbing attachment removed.

For first practise, should a stitch have slipped off the needle, it is sufficient to pull up onto the needle any stitch from the nearest part of the knitting, the only object being to get a distinct and separate loop around each needle, so that it will knit properly. One loop must not be taken around two needles. If only a single stitch is off at any point, the cross thread of yarn just behind the needle should be pulled onto it. ("Behind a needle" is "inside the Cylinder").

TO PUT WORK ON MACHINE.

If the work accidentally runs off through breaking of wool or other cause, press the end of the knitted work with a hot iron, to make the stitches firm. Then rove one or two rounds to get an even row of stitches and pick the stitches onto the needles again with Work Hook as follows:

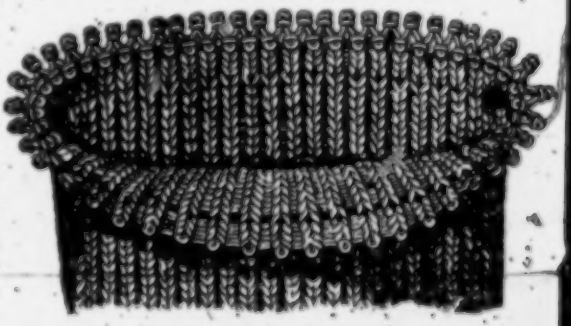

Fig. 27

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A VARIETY OF RIB STITCHES.

A variety of different ribs can be knitted, e. g.

1 and 1 rib equals 1 plain stitch and 1 ribbed stitch
2 and 1 rib equals 2 plain stitch and 1 ribbed stitch
3 and 1 rib equals 3 plain stitch and 1 ribbed stitch
4 and 1 rib equals 4 plain stitch and 1 ribbed stitch

and so on, but the higher numbers are more suitable for the extra finer cylinders.

For a 1 and 1 rib, all the Ribber needles must be in the Dial, but only every alternate needle in the cylinder, and the Dial must be adjusted so that the Ribber needles are opposite the empty Cylinder grooves. This makes the most suitable welt for a gentleman's sock.

For a 2 and 1 rib, all the needles must be in both Cylinder and Dial, and the Dial must be adjusted so that the Ribber needles are exactly central between the Cylinder needles.

For a 3 and 1 rib, every fourth needle is left out of the Cylinder, and every alternate needle out of the Dial; adjustment as in 1 and 1 rib.

For a 4 and 1 rib, all needles are in the Cylinder and every alternate needle in Dial; adjustment as for 2 and 1 rib.

Other ribs are formed in a similar manner to the above.

TO FORM A SELVEDGE FOR RIB WORK.

The Tappet Plate Switch Cam (H7) permits the selvedge to be formed in a very simple manner when knitting 1-1 rib.

Have plain work on the machine with all cylinder needles in. Put in your ribber and set the machine for 1-1 rib. Knit a few rounds with ribber and be sure that you have a stitch on every needle. Break yarn, join on cotton to divide work, as explained on page 14, and having knit three or four rows of cotton, stop yarn carrier at front, break cotton, join on yarn and knit exactly one round. Put your ribber needles out of action by moving switch pin (H8) to the "Out" position and then knit three rounds holding your work well down. Put the ribber needles in action again by moving the Switch Pin to the "In" position, and proceed to knit 1-1 rib for the cuff.

In moving switch pin care must be taken to see that it goes the full distance and rests in either the "In" or "Out" groove as required.

TO KNIT SELVEDGE FOR OTHER THAN 1-1 RIB.

Put on selvedge with all cylinder needles in, as explained on page 14. Knit one round, put on Ribber without needles in Dial, and regulate Ribber for rib required (see pages 27 and 30). Then proceed to knit.

It may sometimes happen that a needle will be in such a position as to block the movement of the Switch Pin. In this case, work the Tappet Plate slightly forward so as to clear the needle; the Switch Pin can then be moved to the desired point.

PICKING UP RIB STITCHES

is done on the same principle as explained on page 20, except that, of course, it is done from the inside of the work instead of the outside. All of the ribber needles must be taken out of the dial and left hanging to their stitches, outside the cylinder. The complete ribbing attachment can then be removed so as to allow free access to the work.

DEFENDANT'S EXHIBIT Q Q 1174

[redacted] 2-3-31

35927 Com

TECHNOLOGY

OF

FRAMEWORK KNITTING

FOR

TECHNICAL SCHOOLS AND SELF-INSTRUCTION.

TRANSLATED AND ADAPTED FROM THE GERMAN

OF

PROFESSOR GUSTAV WILLKOMM,

(Director of the Hosiery School at Limbach, near Chemnitz,)

BY

WILLIAM TERTIUS ROWLETT.

MAR 30 1931 648-16

LIBRARY PATENT OFFICE

PART FIRST.

CONTAINING: INSTRUCTION IN HAND FRAMES AND HAND WARP LOOMS, AND THE EXAMINATION OF LOOPED FABRICS.

PUBLISHED FOR THE LEICESTER TECHNICAL SCHOOL, BY

F. HEWITT CAXTON HOUSE, LEICESTER.

London:

W. KENT & CO.

Entered at Stationers' Hall.

1875

87430

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CHAPTER V.

THE SEAMING OF HOSIERY.

When articles of hosiery require seaming, it is necessary that the kind of stitch employed should have the same elastic properties; but when non-elastic articles are sewn on, such as linen, tape, &c., then a firm or non-elastic stitch may be used. For both kinds, hand and machine work also are used.

A. HAND SEAMING.

The kinds of hand sewing most in use are shown in figs. 503 to 510, plate 24. The "running stitch" (figs. 503 and 504) lays the thread alternately at the front and the back of the work, the length of each stitch apart, that is, the distance of two neighbouring stitch holes. Thus the needle at *a* goes from front to back of the fabric, and at *b* from back to front again, at *c* again to the back, and so on. The length of thread for each stitch does not always remain the same, as when the fabric is drawn straight out, the thread lies nearly in a straight line, and can thus be easily broken; this stitch, therefore, is very little use for hosiery. The "back stitch" does not lay the thread in a wave-like form like the one just described (fig. 504), but in the form of a loop (figs. 505 and 506). It is composed of a long stitch *a b* forwards in the direction the seam is made, alternating with a short stitch *b c* backwards in the opposite direction to the seam. If the fabric be stretched out tightly, the loops of the seam are drawn together, and break unless they have a very long thread. This stitch is sometimes used for hosiery, but care must be used to hold the fabric stretched whilst seaming, so as to use sufficient thread to allow for the elasticity required. When well made, the back stitch should come through the same hole as the forward stitch, and present the appearance of figs. 507 and 508, and is generally so made

by first-class needle women in sewing linen: it is more suitable for non-elastic than for elastic fabrics, and is only used for hosiery when the work is held well stretched out during the seaming, or for sewing hosiery fabrics and non-elastic materials together.

The ordinary "sewing stitch" (figs. 509 and 510) may be considered as a kind of running stitch, but can only be made on the edge, as the thread is not taken alternately through from the back and from the front, but is laid over the edge, and the needle always passed through in the same direction. As hosiery is generally sewn with the edges not lying upon each other, but edge to edge, in order to make the seam as little perceptible as possible, this stitch is the most suitable, and the most generally used. The two pieces of fabric, or the two edges to be sewn, are held with the right side of the work inwards, between the thumb and forefinger of one hand, so that the selvage stitches through which the needle has to pass are seen lying upwards, and the end of the work is fastened to a fixed cushion, so that the hand can keep the work at a regular tension. According as the outermost loops, or the whole loop, or loops further from the edge are joined together, the seam is more or less perceptible and bulky. The different modes of seaming are therefore distinguished as follows:

1. Sewing (German, *Halb Englische Naht*, or *Schlingennaht*) (fig. 512, plate 24) connects the outer loops of the selvages, which are made as the thread returns to make alternate courses. In making the seam, the work is held so that *b* lies on *c*, and *d* on *e*, and so on; the needle bringing the thread from *a* passes through *b c*, then through *d e*, thus always passing by one stitch. In order to make a good firm seam with this stitch, which is only suitable for selvaged goods, the loops *a b c*, &c., must be short, therefore the selvage stitches are always made as firm and short as possible (see Part I. and Part II., pages 30 and 262).

2. The Polish Seam (fig. 513) is like No. 1, but connects the two first loops, *i.e.*, the whole of each selvage stitches together, not in every course, but in every other course. The seam stitches lie in the position shown by fig. 513; the horizontal stitches and oblique threads do not retain towards each other the positions shown, but the latter draw the former obliquely with them. The edges of the work are drawn bent round, so that the selvage wale may be seen lying upon the face.

3. The German Seam (fig. 514) is again the same stitch as No. 1, but connects the stitches of the second and third loops from the edge

with each other in every other course, thus leaving the stitches of the outer wale loose. The seam is clumsier, and is most used for cut fabrics.

4. Seaming (German, *Englische Naht*, or English seam) (fig. 515) connects the outermost selvage loops by a back stitch. If the thread be followed in the drawing in the direction of the arrow *a*, it will be seen that it first forms a forward stitch *a b c d* into the second course, and then a back stitch *d e f* back into the first course; then a forward stitch is formed into the next course but one, followed by a back stitch one course back again, and so on. The long forward stitch in connection with the selvage loops looks like the seam of hand-made hosiery; it is in great favour on account of its security and neatness. A combination of this stitch with the sewing (fig. 509) gives the appearance of fig. 550.

5. The French Seam (fig. 516) is exactly like the one just described, but connects the stitches of the second wale from the edge with each other; on each side of the seam therefore loose stitches are left, which considerably increase the thickness.

6. The Knotted Stitch Seam (fig. 517) is a sewing stitch like fig. 512, but every stitch forms a half knot; the needle is passed round the previous stitch before making the next one. Each stitch is therefore formed separately, and does not lie obliquely.

7. Mending may also be considered to belong to that section which treats of uniting pieces of framework knitting together. The finished articles require further preparation, such as ornamenting or trimming before they are ready for sale. Mending is one of the operations most required, *i.e.*, repairing the holes which have been caused by the breaking of a thread, or a stitch slipping off the needle. For example, when a thread breaks at *d* (fig. 518) it cannot hold the following stitch, which then only forms a loop *e*, and a perfect stitch is not made until the third course, but an opening is left in the work at *d e*; further, as the stitch *e* is not held by *d* it easily slips through *b*, *b* through *a*, &c., so that a long row of loops instead of stitches is produced. In order to connect these loops together again, it is first necessary to draw the stitches *b c* through each other again. For this purpose a hook is used, called the "turning-up hook" (German, *Kettel Nadel*) (fig. 519) formed of a wire filed to a point, and then bent in the form shown, so that the point does not stand out, but is turned under. This hook is pushed through an old stitch *a* (fig. 518), catches the loop *b*, and draws it through *a*; then *c* is hooked through *b*, and so on until all the stitches which had

run down are hooked up. But if one of them is broken, *d*, then it must be sewn up with a needle and thread, as shown at *f* (fig. 520). The thread is passed at f_1 round one or more stitches so as to fasten it in the work without a knot, then through the stitch *c*, then round the next loop *g*, and back through *c*, afterwards passing it round several stitches to the left, in the same way as round those to the right, in order to fasten it. The ends of *d* lie loose at the back of the work. If it were not broken, then it might still be left at the back of the work, and the stitch *f* sewn instead, or it might be hooked in, and *f* and *e* connected by a new stitch.

The following may be considered as stitches for ornamenting, not seaming:

8. The Chevening Stitch (German, *Platt Stich*) (fig. 521) is used for covering the stitches with a thread of another colour, or another material than the original one. The thread is brought through from the back of the work to the face as at *a*, carried over a stitch to *b*, from *b* again along the back to *c*, from *c* again through to the face, and over another stitch to *d*, and so on. The thread is thus wrapped round one or more stitches (see *e f*, fig. 521), and overlays them on the face of the work horizontally, exactly as linen is embroidered on a large framework, which has also sometimes been used for embroidering hosiery. This process is called "embroidering" or "chevening" (German, *bordiren* or *brodiren*; French, *broder*).

This hand-embroidery for producing simple designs is imitated on the hand frame by means of a top machine and thread layers. The top machine takes off certain stitches from the frame needles, the thread layers then lay the embroidering thread upon the same needles, and the original stitches are afterwards replaced upon them. *A similar appliance has been adapted to the rotary frame by Messrs. Lamb & Lee, of Nottingham.*

9. The Cross Stitch (fig. 522) is used for embroidering figures or initials on various articles. It is made in a very similar manner to the preceding one, but each stitch of the work is overlooked by the threads crossing each other.

10. The Chain Stitch and Tambour Stitch have exactly the same combination of threads, and can be made by hand in the same manner. The tambour stitch (fig. 528) can be made by machinery, and in various very different ways. The chain stitch (fig. 529), so called because each loop hangs in the next one, like the links of a chain, can be made by

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hand with the ordinary sewing needle by passing the thread as a loop twice through the loop formed by the preceding stitch. This work is, however, so tiresome and slow that it is but little used. The Tambour stitch (so called because the fabric to be embroidered was originally stretched upon a circular framework, called the "Tambour," fixed to a table, so that the worker had both hands free for the needle and thread) is made with a Tambour needle or hook *a* (figs. 538 to 542), which has a hook with a point to pass through the fabric. The end of the hook is bent under so as to come within the thickness of the wire, which allows it to pass easily backwards and forwards through the fabric. The hook is held in the right hand, the thread is laid by the left hand in the hook, which draws it through in the form of a loop to the upper side of the fabric, and then again passes through both loop and fabric so as to catch a new loop, which it again brings to the upper side (as shown in figs. 540 and 541 for machine work), and thus forms the row of loops on the surface, having exactly the appearance of fig. 528. If the length of the stitches is the same as the width of the hosiery loop, the whole of one or more wales can be covered. This hand-tambour stitch has latterly been almost entirely superseded by machine work.

11. The Quarry Stitch (German, *Zwickel Stich*) (fig. 523) is an embroidery stitch, used for glove backs; generally three rows are worked, the two outer ones of which approach the centre one towards the wrist. As the gloves are stretched when drawn on the hand, it is necessary this stitch should be very elastic, otherwise it would break. The quarry stitch is a mixture of sewing and back stitch; the thread is not passed right through the fabric, but the latter is doubled into a fold w_1 w_2, and held in a sort of vice, in the upper edges of which teeth are cut, the same distance apart as the stitches are required to be long; the needle is then passed through half the thickness of the fabric, as shown at *t u*. The thread is laid in the following manner: at *a b* it goes through the fabric, is then carried over the edge for 4 stitches or 4 teeth back to *c*, passed through from *c* to *d*, again taken to the tooth *e* nearest to *a*, goes through at *e f*, is then carried back to *g*, and so on in the order *i k*, *k l*, &c. The thread is not passed right through the thickness of the fabric, so as not to stitch the fold w_1 w_2 together, in order that it may open out flat again after it has been sewn.

B. MACHINE SEAMING.

The machine stitches used for sewing hosiery have been chosen for the same properties as the hand stitches, viz., those which by the curves allow the thread to be drawn considerably without breaking, so that the seam may be elastic, like the fabric. Therefore the lock stitch so generally used in the manufacture of clothing can only be available for hosiery, when the latter is sewn to some non-elastic fabric. This lock stitch (German, *Doppelsteppstich*) (fig. 511, plate 24) is made with two threads *a* and *b* in such a manner that the needle carries the upper thread *a* through the fabric in the form of a loop a_1, and the lower thread *b* is carried through this loop a_1 by a shuttle, so that it holds this loop back like a rod b_1. By properly regulating the tension of these threads, *a* and *b*, they draw each other half way into the substance of the fabric, so that both sides present the appearance of the face of the back stitch (fig. 508).

For information as to the different construction of various sewing machines, I would refer the student to H. Richard's book, "Die Nähmaschine" (Hanover, Helwigsche, Hofbuchhandlung, 1876); I shall content myself with describing the most important motions of the machines used for seaming hosiery, and the composition of their stitches.

1. THE SINGLE CHAIN STITCH (German, *Einfaden Kettenstich*) (figs. 524 to 529) has exactly the same combination as the hand chain stitch (page 354), and is made with one thread by a needle *a*, and a looper, or hook *b*). The pieces of fabric *e* to be sewn together lie upon or by the side of a table *p*, and the needle *a* is generally upon one side, and the looper *b* upon the other (fig. 524). The latter always holds the loops *c* of the preceding stitch. The needle *a* first passes through the fabric *e*, through a hole in the table *p*, and through the loop *c*, and carries the new loop *d* to the side of the looper *b*, which in the meantime has released *c* (fig. 525). As the needle *a* recedes, the loop *d* becomes loose, the thread bends outward from the needle, and the looper *b*, which swings backward and forward close to the needle, catches this loop *d*, and holds it fast (fig. 526). When the needle has risen quite out of the fabric, the latter moves forward the length of one stitch (fig. 527), and the work begins again. On one side the thread *c d* shows a chain stitch, and on the other a back stitch, like the face *c d b* (fig. 508) of the hand back stitch.

For sewing fabrics with cut edges, the latter are hung on pins fixed in a revolving ring, which turns the length of a stitch after each one is made. This ring turns upon another fixed ring, which has a hole for the needle and stitch to pass through. Inside the ring hangs the looper. These are called "circular sewing machines" (German, *Kranz Nähmaschinen*).

The ends of wrought goods are sometimes bound off by the chain stitch, *i.e.*, the last courses of the two parts of the heel or toe, or rib tops, shirt sleeves, and pant legs, &c. In these cases the stitches are made in the last course, as shown in fig. 529, plate 24; the length of the stitches is the distance apart of the hosiery loops. In order that the needle may pass exactly into each loop, these latter are hung separately upon pins having a groove on their upper surface; these pins are generally fixed in a ring like the machine last described, which ring is either horizontal or slightly inclined. These machines (which are also sometimes straight instead of round) are called "binding off" or "linking" machines, as they perform the same operation known as "binding off" or "linking" on the hand frame.

Sometimes other constructions of single thread chain stitch machines are used, such as Wilcox & Gibbs' or Müller's.

2. THE DOUBLE CHAIN STITCH (German, *Zweifaden Kettenstitch*) (figs. 530 to 537, plate 24) requires two threads *g* and *c*, a needle *a*, and a looper *b*, which at the same time carries the lower thread *c*. The needle *a* is generally on one side of the table, *p* (fig. 530) and the looper *b* is always on the other side. The needle *a* first passes through the fabric *w*, the opening in *p*, and the loop of the lower thread *c* (fig. 531 and 535). In order to form the loop c_1 *c*, the looper *b* must be of the form shown in fig. 535, and lie under the needle in such a manner that the latter passes into the hollow of the former. The looper *b* then draws back, and at the same time has a slight side motion so as not to catch against the needle *a*. This casts off from *b* the old loop *e* of the upper thread *c*, and the new loop *c* of the upper thread is drawn up tight upon the needle by *e* (fig. 532). As the needle *a* rises, the thread *g* (fig. 533) bows out forming a loop, into which the looper *b* advances, carrying the lower thread with it as a new loop c_1, and holding the new loop c_1 of the upper thread. The fabric is then moved forwards the length of a stitch (fig. 534), and the operations re commence. In this stitch, a loop of one thread lies always in a loop of the other; all these chain stitches show on one side of the fabric (fig. 536), and on the other shows like the right side of back stitch (fig. 537).

This double chain stitch, invented by Grover & Baker, is either made with a semi-circular looper, as in the original Grover & Baker machine, or in the manner just described, with a straight looper, having a nearly rectilinear motion, and only requiring a slight side motion (Reichenbach's construction). These machines are known in Germany as Zwickel or Gussett machines, cloth glove, or cylinder machines. (In this latter case they are made with a narrow table for sewing glove fingers.)

If a coarse thread is used underneath, and the fabric sewn with the face downwards, this may be used as an embroidery stitch, as for glove backs, &c.

3. The Tambour Stitch (figs. 538 to 542, plate 24) is made with one thread, a hooked needle *a* (Tambour needle), and a thread feeder *b*, exactly in the same manner as hand-tambour work, and makes exactly the same stitch, viz., the single chain stitch (fig. 528). The thread-feeder *b* is a hollow cylinder, which turns in an arm supported under the table *p* (fig. 548); it has teeth *z* (fig. 549), which gear into the threads of a steep screw *o*, and can turn the thread feeder *b* backwards and forwards not alone by the revolution of the said screw, but also by a motion of the latter to and fro. The upper edge of *b* is cut down on one side, and formed into a small projecting arm 1 (fig. 539) with a groove in to carry the thread, so that the latter, which comes up from the bobbin through the thread feeder *b*, is bent outwards by the arm 1, and turns with *b*. When the thread feeder *b* is turned so that it holds the thread forwards by 1 (fig. 539), the needle *a* passes down through the old loop *c*, the fabric and the opening of *p*, and stands behind the thread *f*. The feeder *b* now turns back a little to the right (fig. 540), and lays the thread close to the needle *a*, so that as the latter rises it catches the thread in its hook (fig. 540); it is thus drawn upwards in the form of a loop through the fabric and the old loop *c*. A tube *r* (fig. 541) descends during this work, and holds down the fabric and loop *c*. When the fabric moves forward (fig. 542), the new loop *d* remains in the hook of *a*, and the new stitch can be begun.

The Tambour or Embroidering machine (fig. 548) is so arranged that the alteration in the direction the work *w* moves is not made by hand as in other sewing machines, but by an alteration in the direction of the feed motion. For this purpose the feeder is not a straight piece as usual, but a ring-shaped foot, whose motion can be changed in any direction at the will of the operator. The needle *a* also turns at the same time as

the feed motion, because its hook must always lie in the direction the work travels. The needle bar a, which passes through the hub of the wheel q with a groove and feather, so that it can be regularly raised and lowered by g, and the driving shaft h can be revolved by the handle y through the connections $q\,q_1$, k, $t\,t_1$, v, $v\,v_1$, $x\,x_1$. The cam of the feed motion, which lies in the form of a ring round the needle a, is turned at the same time by the same connection, and consequently the work can be moved in any form, even in small circles. The thread feeder b must also be turned at the same time as the needle, so that its arm 1 can always lay the thread properly in the hook; the shaft n, which carries the screw o, therefore passes through the hubs of the wheels $x\,v_1$ with a groove and feather. Thus p turns o and b at the same time as a and the feeder, so that these parts always maintain their relative positions. The screw o gives the regular reciprocating motion to b for laying the thread a, as it fits in the teeth z of b like a rack, and is regularly moved backwards and forwards by the shaft h, through n, $m\,l\,k$ and $k\,i$. Latterly instead of the handle y, a pattern wheel has been substituted, which gives the necessary motions to x, &c., so that the machine produces a given pattern automatically.

The Tambour and single chain stitch machines have also been arranged with rows of needles in the same way as the large embroidering machines so as to produce the same pattern in several parts at once, or to sew several pieces together at the same time. (Feronelle's, and Saphore & Gillett's machines, see Deutsche Industrie, Zeitung, No. 25, year 1870, and No. 1, year 1872.)

4. THE IMITATION OVERCAST SEAM (German, *Nachgeahmte überwendliche Naht*) with two threads has been known since the year 1870 (Rudolf's sewing machine) (see figs. 543 and 545), and has a needle a with a thread c, a guide b for the second thread d, and the looper e. The needle a (figs. 543 and 545) goes through the fabric w near the edge, and carries the thread c in the form of a loop c_1 through the loop d_1 of the other thread, which is held in the proper position by the looper e, and through the fabric w. As the needle returns the loop c_1 bows out, and the thread guide d passes in with its loop d_2 (fig. 544). As the thread guide b recedes its loop opens, and the looper e enters and holds it ready for the next stitch, so that a can again pass into this loop d_1. The thread c is therefore always passed through the fabric, but the other thread d is laid over the edges so as to wrap round them in the same way as hand sewing.

5. THE IMITATION OVERCAST SEAM with a single thread has been known since 1875 (Hertel's sewing machine), and is an adaptation of the single thread chain stitch. For this stitch a needle *a* and a looper *b* are required as in the chain stitch (see figs. 546 and 547, plate 24), the looper *b* however does not hold the loop *e* on the same side of the work as it catches it, but has to carry it over the edge (fig. 547) so that the needle can pass first through the loop *e*, and then through the fabric. In this case also the loops wrap round the edges.

Both these stitches are used for seaming wrought goods, the latter are carried in Rudolf's machine between two rollers pressed together by a spring, so that only a small portion of the fabric projects, and the needle passes through as near the selvage stitches as possible. In Hertel's machine, the feeding apparatus consists of a fixed trough, against which a feed roller presses, between which the work, stretched by a weight, passes.

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1185 c
DPP. Ex. 99 (p. 13)

503. 505. 504. 506. 507. 509. 508. 510. 511.

512. 513. 514. 515.

516. 517. 518. 520. 521. 522. 524. 525. 526. 527.

518. 523. 529. 528.

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536. 537. 543. 544. 545. 547. 546. 549. 550.

Verlag v. Arthur Felix in Leipzig
Lith. Anst. v. Brünnerts & Burmeister, Berlin.

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DEFENDANT'S EXHIBIT R R

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper, Contents and Drawing, in the matter of the

Abandoned Application of

Ana H. De Marr,

Filed March 3, 1923, Serial Number 622,629,

for

Improvement in Needles and Method of Operation.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this twenty-sixth day of March, in the year of our Lord one thousand nine hundred and thirty-one and of the Independence of the United States of America the one hundred and fifty-fifth.

ATTEST:

Chief of Division.

Thomas E. Robertson
Commissioner of Patents.

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Do not write below this line
ABANDONED 1913

522629

DIV. 21 PATENT No.

To all to whom these Letters Patent may concern:

Be it known that I, Jacob Haish, a citizen of the United States, residing at DeKalb, in the county of DeKalb and State of Illinois, have invented certain new and useful Improvements in Needles and Methods of Operation; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Assignor to Frank C. Stephens, of Mexico City, Mexico.

of MEXICO CITY
County of
State of MEXICO
Formerly

NEEDLES AND METHOD OF OPERATION

	ORIGINAL		RENEWED
Petition	MAR 3	1913	, 19
Affidavit	MAR 3	1913	, 19
Specification	MAR 3	1913	, 19
Drawing	MAR 3	1913	, 19
Model Copy		, 19	, 19
Final Fee 320	MAR 3	1913	, 19
Appl. filed complete	MAR 3	1913	, 19
			, 19
Examined and passed for issue		, 19	, 19
Exr. Div.			Exr. Div.
Notice of Allowance		, 19	, 19
	By Commissioner		By Commissioner
Final Fee		, 19	, 19
Patented			, 19

Division of Appn. No.

Attorney VERNON E HODGES 605 7TH ST N W CITY

Assistant Attorney

(No. of Claims Allowed) Printed Claims In O. G. (Cl.)

Title as Allowed

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PETITION

$20 RECD MAR 1923 U.S.PAT.OFFICE

622629

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To the Commissioner of Patents:

Your petitioner ANA H. de MARR,

a citizen of the United States of Mexico, residing at Mexico City, Mexico, in the County of [illegible] and whose post-office address is:- [illegible] St., Mexico City, Mexico, prays that Letters Patent may be granted to her for the improvement in Needles, and Method of Operation, set forth in the annexed Specification

And she hereby appoints (1) VERNON E. HODGES, 605 7th St. N.W., Washington, D. C., U.S.A., [illegible] Register No. [illegible] her attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign her name to the drawings, to receive the Letters Patent, and to transact all business in the United States Patent Office connected therewith.

Signed at Mexico City, Mexico, [illegible] County of [illegible] and State of [illegible] this 19th day of February, 1923.

(Her signature in full) Ana H de Marr

(1) In case of assignment of the invention, application and Pat. must be made by actual inventor, even if patent issue to assignee. Without power of attorney be given, as it will be ignored.

SPECIFICATION.

To All Whom it May Concern:

BE IT KNOWN, That I, ANA H. de MARR,

a citizen of the [illegible] Republic of Mexico, residing at Mexico City, Mexico, in the County of [illegible] have invented certain new and useful improvements in Needles and Method of Operation,

of which the following is a specification:

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My invention relates to an improvement in Needles, and its method of use.

In repairing the runs or ravels in knitted goods, the ordinary crochet-hook has been used, but is not practicable, owing to the threads or yarns catching in the barb when pulling the thread through the loop or chain, as it were, without great effort and loss of time. This objection is obviated in the present invention as the bridge or guard permits the making of the loop without catching or interfering by passing the second thread over the bridge and clearing the hook.

The ordinary crochet and similar needles are apt to slip or drop the threads when work is laid down, causing the threads again to run or unravel, thus causing considerable loss of time and labor when resuming the work, whereas in my present hook this can be obviated simply by hooking either the side of the fabric or catching up the two threads instead of one, and closing the guard or bridge, and in this way the work can be safely carried or laid down without danger of the needle coming out.

It has the further advantage of being suitable for doing various kinds of fancy work or stitches when fabrics are stretched on a frame. Owing to the catching of the

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barb in the ordinary crochet-needle, this class of work is almost impossible, and wholly impracticable. The guard or bridge of my present type of hook makes it possible to do this class of work with comparative ease.

With the old styles of hook, it often happens that the point or barbed end is accidentally stuck into a fabric and can be extracted only after considerable trouble, whereas my hook can be easily removed by simply passing the needle through and closing the guard over the hook, thus permitting the needle to be pulled out easily and with out danger of unraveling or pulling or tearing the threads or fabric.

With the ordinary crochet needle, it is necessary to have various sizes for different classes of work. For example, a fine needle with a small barb for the finer work, such as runs in stockings, etc., and a large size for such work as knitting-yarns, heavy sweaters, etc., while one of my improved needles of medium size may be utilized for either fine or coarse work.

Thus I have devised a simple, hand-operated needle of the character indicated, which may be utilized to do not only the work of the ordinary crochet-needle, but various stitches and other work that a crochet-needle would not be adapted to do.

The needle itself consists of a hook, a guard or bridge pivoted thereto, and the needle terminating at one end in a handle by means of which it is manipulated.

The invention further consists in a hook having a recess on one edge, and a handle at one end, and a guard or

bridge pivoted opposite the recess in position to close the hook at certain periods during the method of using the needle and during the process of repair work.

In the accompanying drawings:-

Figs. 1 and 2 are views of the needle showing the two extreme positions of the latch in the two figures; and

Figs. 3 to 7 are views of a fabric and showing the different stitches in the method of hand knitting or repair.

The numeral 1 represents the hook at one end of the needle 2; and 3, is the handle. 4, is a guard or bridge in proximity to the hook and in position to close the latter during a portion of the operation of knitting and repair. A notch or recess 5 is formed in the back of the needle opposite the free end of the guard or bridge when the latter is wide open, as viewed in Figs. 1 and 2, the purpose of which is to reduce the thickness at this particular point in the needle to adopt it more nearly to the thickness of the thread or yarn, and the size of loop, and more particularly for the purpose of reducing the required movement of the needle in the operation to an extent corresponding to the depth of the notch or recess.

The present invention is wonderfully well adapted to the repair of "runs" in silk stockings, although it applies as well tobreaks in the stitches of sweaters and other knit or crocheted fabrics. By its use a stocking can be easily and quickly repaired by hand and restored to its original condition at slight expense. The skill required to operate the needle is easily acquired with a little practice.

While different stitches may be made by means of this needle, by way of illustration one only has been shown in the several figures of the drawings from Figs. 3 to 7 inclusive, and in this particular stitch the method of operation is substantially as follows:-

Referring to Figs. 3 to 6 of the drawings, an exaggerated view of a run in fabric such as a sweater or a stocking is shown. The operator first inserts the hook 1 through the last loop a of the ravel or run, and beneath the next thread b. The needle is then slid forward until the loop a slides over the free end of the guard or bridge 4 as shown in Fig. 4. The needle is then pulled back in the reverse direction, the loop a sliding back against the guard or bridge and swinging it against the hook, as clearly viewed in Fig. 5, and the hook in the meantime picking up thread b as shown in said Fig. 5. The operator now continues to pull the thread b which is held tight by the closing of the guard or bridge 4 against the hook, until a loop c is formed in thread b, and it is drawn through the loop a as clearly illustrated in Fig. 6.

The operator now lifts the needle carrying the loop c up over and around loop a, pushing the needle forward as in Fig. 3, through the loop c, until itopens the guard or bridge and swings it back, and the hook 1 is inserted beneath the next succeeding thread b. After the loop c shall have slid over the end of the guard or bridge and beneath it (as shown in Fig. 4), the needle is reversed or pulled back, and the hook carries with it the thread d just as it has previously done with thread b, as shown in Figs. 4 and 5; and, as thread d is pulled back, and the loop is formed ~~in~~ in it, the already-formed loop g slides

against the guard or bridge, again closing it, and confining the thread d within the hook, whereupon a further pull forms a loop in thread d as has been described in connection with thread b, and this is pulled through loop c. Thus the operation is repeated until the run or ravel is repaired, after which the end is held down by a thread or stitch.

The clearance afforded by the notch or recess 5 makes it possible to hold the needle down closer to the fabric, and greatly reduces the thickness of the combined needle and latch as well illustrated in Fig. 1, which is very desirable during the operation of knitting and repairing as it lessens the pull and tension upon the threads and the loop.

In this way the fabric is easily and quickly repaired by hand by the skillful manipulation of the hand needle. Finally the loop may be fastened by a thread or stitch or other means, which will prevent the entire repair stitch from raveling out.

I claim: 1194

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1. A hand needle having a hook at one end and a guard or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, the needle terminating in a handle at the end opposite the hook.

2. A hand needle having a hook at one end and a guard or bridge pivoted in proximity to the hook and in position to open and close the latter with the operation of the needle, and a handle at the end opposite the hook, the back of the needle notched or recessed at a point opposite the end of the guard or bridge when the latter is open.

3. A method of needle-work which consists in inserting a needle having a pivoted guard or bridge through the hoop of a run or raveling, hooking it to the adjacent thread, pulling the thread through the loop, hooking the next thread, and pulling it through the loop formed, and so on, until the run or raveling is completed.

4. A method of needle-work which consists in inserting a needle having a pivoted guard or bridge through the last loop of a run or raveling, grasping the next thread with the hook, closing the guard or bridge over the hook, and when thus closed pulling the thread through the loop, thereby forming the entire loop, and repeating the operation with the last-named loop by sliding the hook on through the opening guard or bridge, hooking another thread, closing the guard or bridge thereover, and pulling the thread thus hooked through the loop to form another loop in said thread and repeating the operation.

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In Testimony Whereof I affix my signature.

Ana H de eMarr
(Signature Pertaining to Full.)

OATH

REPUBLIC OF MEXICO }
CITY OF MEXICO } ss:

ANA H. De MARR,

the above-named petitioner, being duly sworn, deposes and says that she is a citizen of (1) the Republic of Mexico, residing at Mexico City, Mexico,

she verily believes herself to be the original, first, and (2) sole inventor of the improvement in Needles, and Method of Operation,

described and claimed in the annexed specification; that she do es not know and do es not believe that the same was ever known or used before her invention or discovery thereof, or patented or described in any printed publication in any country before her invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States, on an application filed by her or her legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvement has been filed by her or her representatives or assigns in any country foreign to the United States, except as follows: [illegible]

Ana H de eMarr
(Signature Pertaining to Full.)

Sworn to and subscribed before me this 19 day of February, 1923.

Edward P Downey
(Official Signature)

American Vice Consul.
(Official Character.)

[illegible] commission will expire [illegible]

(1) If the applicant resides in some city, state, or country other than that of which he is a citizen, the fact must be stated. If executed before an officer not having a seal, the certificate of the Judge or Clerk of County Court must be affixed, showing official character of such officer.

(2) If the application is made by the assignee of the inventor, the fact of assignment must be stated. If any application for foreign patent has been filed, further statement in this application, specifying such application, must be required before issuance of patent in order that no patent has been granted on application filed

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Div. 21 Room 212

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name.

Paper No. 2

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

WASHINGTON

U. S. PATENT OFFICE MAR 9 1923 MAILED

RFL/EO

Copies sent applicant and assignee.

Vernon E. Hodges,

605 Seventh Street,

Washington, D. C.

Please find below a communication from the EXAMINER in charge of the application of

Ana H. De Marr, Serial No. 622,689, filed March 3, 1923, for Needles and Method of Operation.

Thomas E. Robertson

Commissioner of Patents.

References:

(British) Walker, 19,115, Sept. 5, 1903, (223-Needles);1 sheet;
Pogson, 168,817, acc. Sept. 15, 1921, published Oct. 6, 1921, (66-5;D25.5)1 sheet.

The following claim is suggested to applicant for purpose of interference:

An implement for mending fabrics comprising a hooked needle, a latch pivotally carried at one end by the needle shank at the hooked end thereof, said latch being arranged at the free end to engage over the hook in one position thereof, and a handle in which the needle is mounted.

Pogson discloses the count of the interference. If applicant invented the instrument disclosed prior to October 6, 1921, the date of publication of Pogson, he should file an affidavit under Rule 75.

The British patent to Walker discloses the indentical device disclosed by applicant for the purpose set forth in his specification, which follows:

"This invention relates to an improved needle for use in making rugs and mats by hand, such needle comprising essentially a hand latch hook with handle, and being adapted to be worked in open and close canvas.

Our said invention is illustrated in the accompanying drawing, Fig. 1 showing the appliance in the position taken up during its insertion into the canvas, and Fig. 2 showing

the same during its withdrawal from the canvas after having laid hold of the wool.

A is the needle or hook, which is screwed or otherwise fixed in a suitable handle such as B, and is provided with a small latch or finger C, pivoted at D and working within a slot formed in the body of the needle. This latch or finger C is hollowed out at its outer extremity c in such a manner as to enclose and protect the point a of the needle or hook A (as shown in Fig. 2) during its withdrawal from the canvas, and is adapted to turn back against the body of the needle (as shown in Fig. 1) during the insertion of the needle into the canvas. By this means the manufacture of the rug or mat is greatly facilitated and accelerated, there being no possibility of the needle catching or fouling during its insertion into or withdrawal from the canvas. Our improved needle is adapted also to take the double ends of the wool and serves therefore as a means of knotting the wool after the same has been drawn through the canvas."

If applicant considers that he discloses invention over Walker and desires to contest an interference with the above claim as an issue, he should file the claim together with the affidavit above referred to on or before March 29, 1923.

Failure to make the claim will be construed as a disclaimer of the subject-matter set forth in the claim, and in any event all of applicant's claims will be held as not patentable over the issue.

Applicant's claims are now rejected on Pogson (British).

W. L. Thurber

Examiner, Div. 21

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE
WASHINGTON, D. C.
IF UNDELIVERED, RETURN IN 10 DAYS

WASHINGTON, D.C.
MAR 9
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REGISTER
OR
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VALUABLE M
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Dr. 21

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Ang H. de Mayo
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Mexico

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MAIL ROOM
MAR
29
1923
U.S. PATENT OFFICE

Letter to Office.

PAPER NO 3

IN THE UNITED STATES PATENT OFFICE

In re application of
Ana H. de Marr
Needle and Method of Operation
Filed March 3, 1923
Serial No. 623629

Div. 81, Room 318.

UNITED STATES
PATENT OFFICE
MAR 31 1923
TEXTILES

Hon. Commissioner of Patents,

Sir:

Owing to the fact that applicant is located in Mexico City, it has been impossible to secure the affidavit required within the time limit set by Examiner, namely the 29th inst. It is therefore respectfully asked that Examiner extend the time for filing such affidavit for thirty days from the date now set.

Respectfully,

Attorney.

Washington, D. C.,
March 28, 1923.

1200

1200

Div. 21 Room 212

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name.

200

Paper No. 4

All communications relating to this application should give the serial number, date of filing, name of inventor, and name of the applicant.

DEPARTMENT OF THE INTERIOR

RFL/EO

UNITED STATES PATENT OFFICE

WASHINGTON

U. S. PATENT OFFICE
MAR 31 1923
MAILED

Vernon E. Hodges,
605 - 7th Street, N. W.,
Washington, D. C.

Please find below a communication from the EXAMINER in charge of the application of

Ana H. De Narr, Serial No. 622,629, filed March 3, 1923, for Needles and Method of Operation.

Thomas E. Robertson
Commissioner of Patents.

Letter of March 29, 1923, is of record.

Applicant's request for an extension of time, is granted. Applicant now has until April 28, 1923 to respond to the requirements noted in the Office letter, if he desires to contest an interference.

W. L. Thurber

Examiner, Div. 21.

1201

1201

Letter to Office.

MAIL ROOM
APR
28
1923
U.S. PATENT OFFICE

PAPER NO. 7

IN THE UNITED STATES PATENT OFFICE

In re application of ..

Ann H. deHarr ..
Needle and Method of Operation .. Div. 21, Room 213.
Filed March 3, 1923 ..
Serial No. 622839 ..

UNITED STATES
PATENT OFFICE
APR 30 1923
TEXTILES

Hon. Commissioner of Patents,

Sir:

Attorney has not yet been able to procure the required affidavit. Also the assignee of record was to have furnished certain data, but thus far has failed to do so. It is therefore respectfully asked that Examiner extend the time for filing the affidavit for another thirty days from date now set.

Respectfully,

V. E. Hodges.

Attorney.

Washington, D. C.,
Apr. 28, 1923.

1202

Div. 21 . Room 212
Address only "The Commissioner of Patents, Washington, D. C." and not any official by name.

Paper No. 6

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON.

RFL/EO

U. S. PATENT OFFICE
MAY 2 - 1923
MAILED

Vernon E. Hodges,
605 Seventh Street,
Washington, D. C.

Please find below a communication from the EXAMINER in charge of the application of
Ana H. De Mars, Serial No. 622,629, filed March 3, 1923, for Needles and Method of Operation.

Thomas E. Robertson
Commissioner of Patents.

In compliance with applicant's request of April 28, 1923, the desired extension of time is granted. Applicant now has until May 28, 1923, to respond to the requirements noted in the Office letter, if he desires to contest an interference.

L

W. L. Thurber
Examiner, Div. 21.

RR
17

1203

9—421

1923

CONTENTS:

UNITED STATES PATENT OFFICE
MAR 7 - 1923
TEXTILES

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5.	Letter APR 28 1923	30.	
6.	Letter MAY 2 1923	31.	
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11.		36.	
12.		37.	
13.		38.	

1204

1204 ABANDONED Serial No. 622629 Div. 2

Sheets-Sheet

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

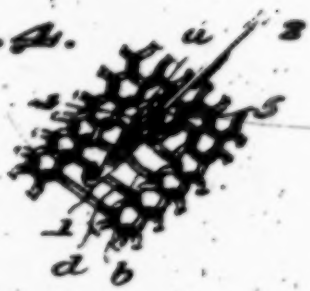

Fig. 5.

Fig. 6.

Inventor:
Ana N. Lidman
By Vernon E. Hodges
Attorney

1205

DEFENDANT'S EXHIBIT 8 8

Form P. Cort. 1a.

1205

F. S. Wesson

PATENTS AND DESIGNS ACTS, 1907 TO 1928.

I, the undersigned, being an officer authorised by the Board of Trade under Section 62 (3) of the Patents and Designs Acts, 1907 to 1928, hereby certify that the annexed are true copies (as accepted) of the provisional specification lodged on the 18th January, 1921, in connection with Rogson's application for Patent, No. 2,476 of 1921, filed on the 18th January, 1921, and of the complete specification and drawings left in connection therewith on the 3rd February, 1921.

It is also certified that the complete specification was accepted on the 15th September, 1921, the application receiving the number 168,817; and that the said provisional specification and complete specification and drawings were first printed and placed on sale in the Sale Branch of this Office on the 6th October, 1921.

This certificate is issued for use in the United States of America.

HD

WITNESS my hand this 19th day of March, 1931.

J. Martin

THE PATENT OFFICE,
25, SOUTHAMPTON BUILDINGS,
LONDON, W.C.2,
ENGLAND.

[Second Edition.]

1206

1206

PATENT SPECIFICATION

Application Date: Jan. 18, 1921. No. 2478/21. 168,817

Complete Left: Feb. 3, 1921.

Complete Accepted: Sept. 15, 1921.

PROVISIONAL SPECIFICATION.

Improved Method of Repairing Knitted Goods.

I, JOHN WALL POOSON, 262, Duke Street, Dennistoun, Glasgow, British subject, do hereby declare the nature of this invention to be as follows:—

This invention has reference to methods of repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

With goods of the above kind it frequently happens that the thread or yarn breaks in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article when repaired, presents an unsatisfactory appearance and is of little further use. The object of this invention is to provide an improved method of repairing knitted articles in which "ladders" have formed, whereby the appearance of a perfectly knitted article is produced.

The method, according to this invention, consists in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as by a piece of thread of yarn corresponding to the article.

A means for carrying out the method comprises a "latch" needle, such as used on a knitting machine. The needle is preferably secured in a handle and provided with a removable cap.

Dated this 17th day of January, 1921.

H. D. FITZPATRICK & Co.,
Chartered Patent Agents,
94, Hope Street, Glasgow.

COMPLETE SPECIFICATION.

Improved Method of Repairing Knitted Goods.

I, JOHN WALL POOSON, 262, Duke Street, Dennistoun, Glasgow, British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has reference to methods of repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

Goods of the above kind frequently have the thread or yarn broken in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article, when repaired, presents an unsatisfactory appearance and is of little further use.

The object of this invention is to provide an improved method of repairing knitted articles in which "ladders" have been formed, whereby the appearance of a perfectly knitted article is produced.

According to this invention, the method consists in looping or knitting each portion of the thread or yarn form-

[Price 1s.]

ing the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as, by a piece of thread or yarn corresponding to the article.

A means for carrying out the method comprises a "latch" knitting needle, of the size and design as used in knitting machines, secured in a handle and provided with a removable damp proof cap.

Referring to the accompanying drawings, Fig. 1 illustrates a piece of knitted fabric with a "ladder", Fig. 2 a suitably mounted form of latch needle for repairing such "ladder", and Figs. 3 to 8 inclusive illustrate a method of proceeding for effecting a repair of a "ladder" in a knitted fabric, under this invention.

The means illustrated in Fig. 2 comprises a knitting needle *a* with a hinged latch *b*. The needle is secured in a handle *c* and the latter is fitted with a removable protective cover *d* adapted to enclose the needle *a* and keep it free from damp and dirt.

One manner of using the needle for repairing a "ladder" *e* shown in a piece of knitted fabric in Fig. 1, is illustrated in the series of views Figs. 3 to 8 inclusive. In Fig. 3 the needle *a* with the latch in the open position is in engagement with a loop *f* formed thereby in the bottom piece of thread or yarn f^1. The needle thus engaged is then moved to the position shown in Fig. 4 to enable the forward hook end to be directed towards the adjacent piece of thread or yarn *g* under which the hook is passed as shewn in Fig. 5 and moved forwardly until the latch *b* passes the loop *f*. The direction of movement of the needle *a* is then reversed with the result that the latch is moved to the closed position by contact with the loop *f* and the piece of thread or yarn *g* is enclosed between the hook and the latch and passed under the loop *f* and formed into a loop g^1 as shewn in Fig. 7. In passing the loop g^1 under the loop *f*, the latter passes out of engagement with the needle and the latter is then free to be moved forwardly over the loop *f* for engagement with a piece of thread or yarn *h* as shewn in Fig. 8. Upon the hook being engaged with the piece of thread or yarn *h*, the loop passes beyond the end of the latch and a reversal of the direction of movement of the needle again closes the latch against the hook owing to the contact of the former with the loop g^1, and the loop thus formed in the piece of thread or yarn *h* is taken under the loop g^1 and the latter disengaged from the needle. By such a series of operations with each piece of thread or yarn in the ladder, each piece is looped or knitted with the adjacent piece and the whole of the damaged or imperfect part is repaired or made perfect. When the final loop has been made a piece of thread or yarn, preferably similar to that of the damaged or imperfect knitted fabric, is passed under the loop and into engagement with the margin of the damaged portion and knotted. The introduction of the piece of thread or yarn for tying the last loop may be effected by a sewing needle or by means of the latch needle, as will be obvious.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A method of repairing knitted goods in which the thread or yarn is broken with the consequent formation of a "ladder", consisting in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the adjacent portion of the knitted fabric by a piece of thread or yarn, substantially as set forth.

2. Means for repairing knitted goods according to Claim 1, comprising a latch knitting needle of the size and design as used in knitting machines mounted in a handle and provided with a removable damp proof protective casing.

Dated this 2nd day of February, 1921.

H. D. FITZPATRICK & Co.,
Chartered Patent Agents,
94, Hope Street, Glasgow.

Abingdon: Printed for His Majesty's Stationery Office, by Burgess & Son.
[Wt. 514—23/6/1999.]

Red. C.I.

1208

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168,817 COMPLETE SPECIFICATION

1 SHEET

2nd Edition

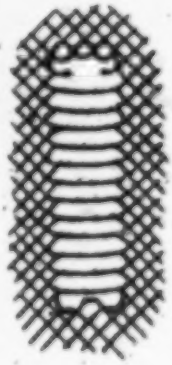

Fig. 1.

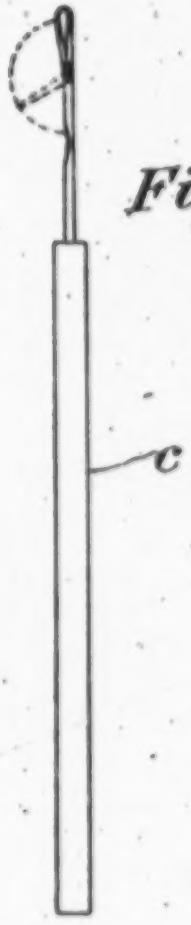

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

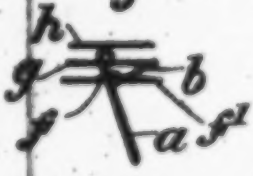

Fig. 6.

Fig. 7.

Fig. 8.

[This Drawing is a reproduction of the Original on a reduced scale]

Charles & Read Ltd. Photo Litho.

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Feb. 17, 1931.

C. R. DUNN ET AL

1,793,225

METHOD OF MENDING

Filed March 27, 1929 3 Sheets-Sheet 1

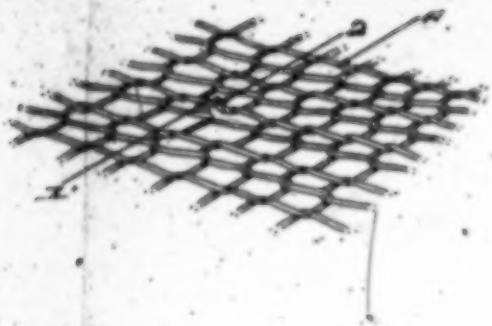
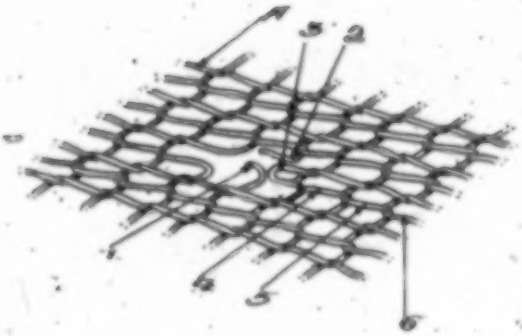


Fig. 1.

Fig. 2.



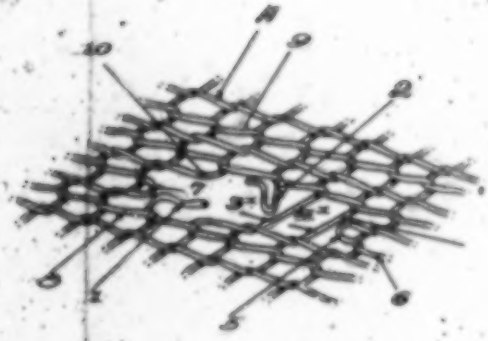


Fig. 3.

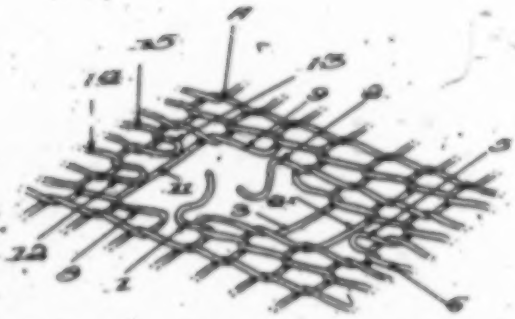


Fig. 4.

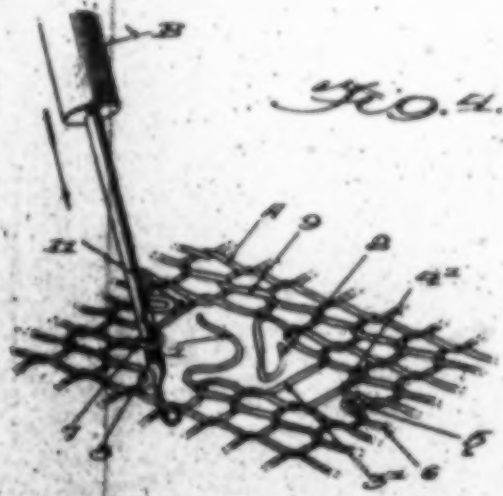


Fig. 5.

Inventors

Caroline R. Dunn

and Abel E. Rahn

By Lewis E. Hodges Their Attorney

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C. R. DUNN ET AL.

1,793,225

METHOD OF MENDING

Filed March 27, 1929

3 Sheets-Sheet 2

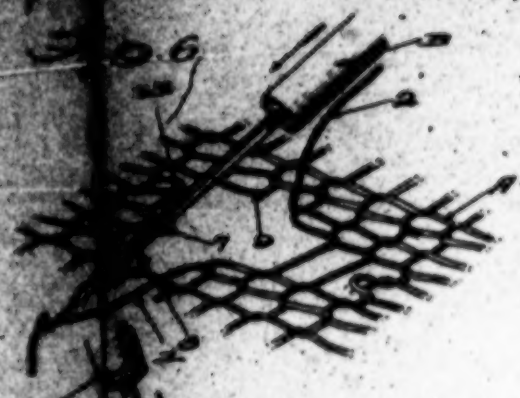

Fig. 6

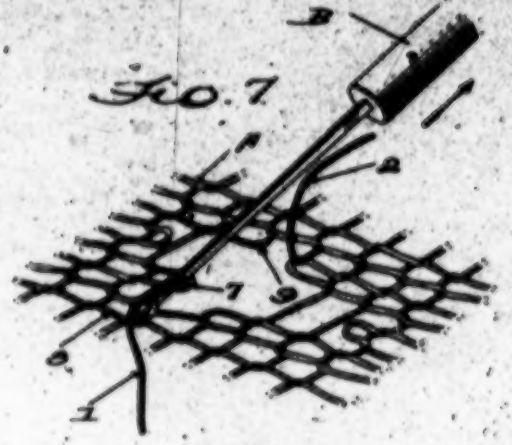

Fig. 7

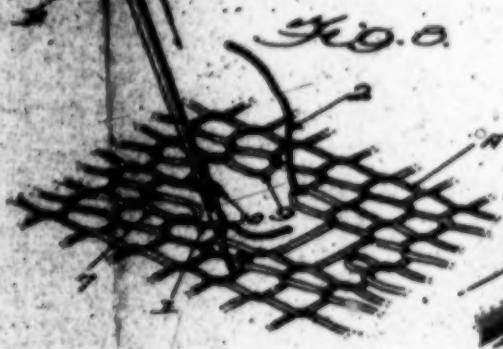

Fig. 8

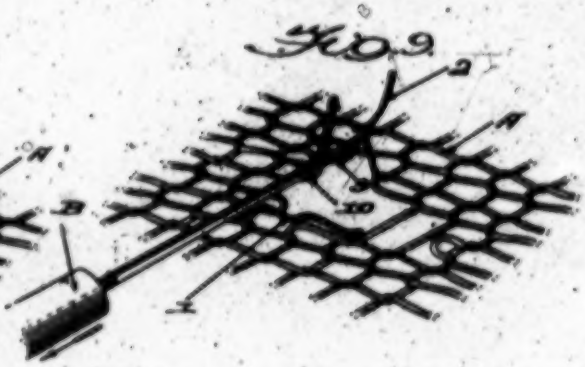

Fig. 9

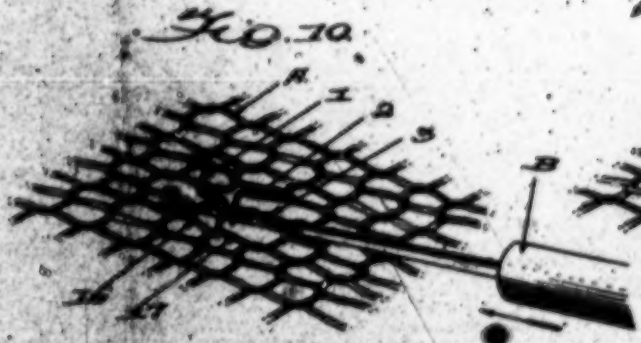

Fig. 10

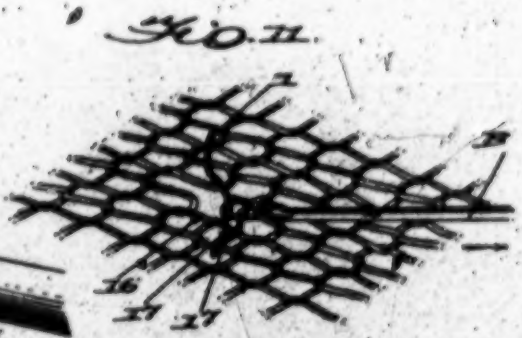

Fig. 11

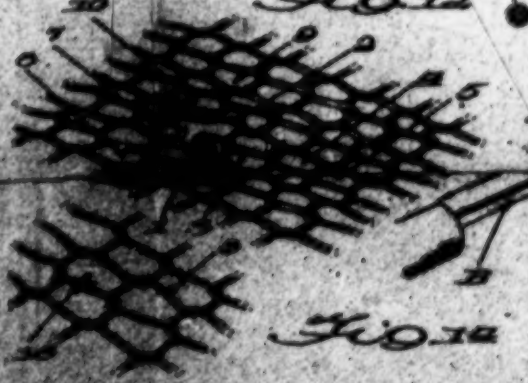

Fig. 12

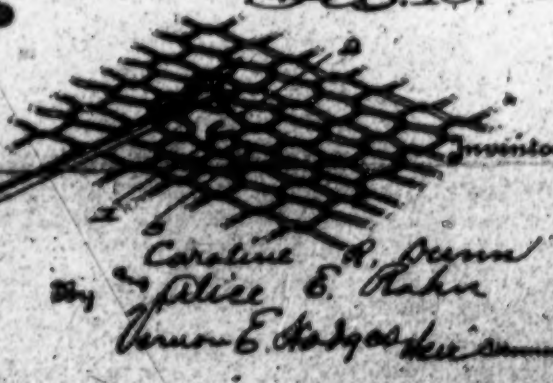

Fig. 13

Inventors

Caroline R. Dunn

Alice E. Fuller

Vernon E. Hodgdon

By

Attorneys

1211

Feb. 17, 1931.

1211

C. R. DUNN ET AL

1,793,225

METHOD OF MENDING

Filed March 27, 1929 3 Sheets-Sheet 3

Fig. 35.

Fig. 36.

Inventors

Caroline R. Dunn
Alice E. Raber

By Verdon E. Keighley
Atty

Attorney

1212

1212

Patented Feb. 17, 1931

1,793,225

UNITED STATES PATENT OFFICE

CAROLINE R. DUNN AND ALICE R. RAHN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE STELOS COMPANY, INC., OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF DELAWARE

METHOD OF MENDING

Application filed March 27, 1929. Serial No. 350,225.

Our invention relates to an improved method of mending the broken thread in reknitting or repairing runs in hosiery or other knitted goods; and it is more particularly adapted to the final fastening of reknitted runs in knitted fabrics, such as hosiery and other knitted articles.

Different methods have been employed for effecting this final fastening of the reknitted run. They may be divided into two classes: (1) Methods requiring stitching or sewing of either the entire break or a part of it, and (2) Methods of returning the broken threads to their original loops as a part of the reknitting process with a hook needle, the fabric being held over one or more fingers, said hook needle being employed for the reknitting as well as the relooping or mending.

The first method, which is the one generally used commercially, is objectionable because of the impossibility of making the stitching or sewing invisible even though the restored run itself might not be discernable to the eye.

The second method being practically a part of the hook needle reknitting method is too slow for commercial value.

Our improved method overcomes the objectionable features of the first method and improves the second one by increasing the speed with which the operation can be accomplished, whereas heretofore the mend of the broken thread or threads has been either unsightly or accomplished too slowly to be of commercial value. Our improved method of mending eliminates both of these objections.

The accompanying drawings represent the different stages of the mending operation, progressively, from the original break to the complete repair of the run, and thus:—

Fig. 1 is a view illustrating a piece of knitted fabric, such as hosiery, merely showing a break in a loop preceding a run;

Fig. 2 shows the start of the run in one direction;

Fig. 3 shows the run progressing in both directions from the break;

Fig. 4 illustrates the run progressing still further, with a single run in one direction, and a typical double run in the opposite direction.

Fig. 5 is a view showing a latch needle in the final loop of a reknitted run just prior to being inserted from the bottom, into the nearest half-loop while holding the final loop of the reknitted run on its latch and shank;

Fig. 6 shows the needle pushed into this half-loop until the latter clears the latch, the needle reaching out and hooking the broken end to return it to both the said half-loop and the last loop of the reknitted run;

Fig. 7 shows the latch closed and the needle drawing the thread through the loops;

Fig. 8 is a view showing this broken end after it has been returned to the half-loop, and drawn into the last loop at the end of the adjacent run where it has been left as a means for holding that loop which has now become a half-loop, while the needle has been used to reknit the next adjacent run preparatory to restoring the other broken end to a similar position at the other or adjacent side of the one in which the first end has been left;

Fig. 9 shows the needle drawing the other broken end through the nearest half-loop and the last loop of the reknitted run, the loops on the needle closing its latch to bridge the hook;

Fig. 10 shows the needle in the last loop of the reknitted single run, reaching out for the two ends, each of which has in the meantime been drawn into its respective half-loop, which half-loops are adjacent to the last loop of the reknitted single run, i. e., one half-loop on each side of the last loop of the single run.

Fig. 11 shows these ends being pulled through the loop, the latch of the needle having been closed by the loop;

Fig. 12 shows both broken ends having been pulled through the last full loop preparatory to drawing one of the ends through the remaining two half-loops;

Fig. 13 shows the final steps before the fastening or tying of the ends of the thread together, with the hook of the needle drawing one broken end through the last two adjacent half-loops;

Fig. 14 shows the broken ends, tied together in a knot, after restoration;

Fig. 15 is a perspective view showing the fabric stretched over a holder and in process of having a run mended; and

Fig. 16 is a sectional view through the same.

The letter A represents a small piece of knitted fabric, in which adjacent threads are joined by a series of loops. As is well understood, these loops are so interlaced, and dependent on one another, that the breaking of a thread in any one of these loops will cause a run or unraveling as the fabric is stretched, and very often there will be at least one run in one direction, and two in the opposite direction from the hole as a result of the break. A run results from a break in the thread.

Fig. 1 is a view illustrating the original break in the thread, preceding a run. The two ends are indicated by the numerals 1 and 2.

In Fig. 2, the loop thus broken has pulled entirely apart, due to the stretch of the fabric, and has disappeared, having pulled out of, and released, the loop 3, which, as the run in that direction progresses, pulls out of loop 4, which loop in turn pulls out of loop 5, and loop 5 out of loop 6, and so on, in one direction, from the break and hole first formed.

A further stretching of the fabric and the pulling of the broken ends is illustrated in Fig. 3, in which the end 1 has just left the loop 7 on the opposite side of the hole or break. In Fig. 4, this end 1 has also pulled out of the loop 8, leaving it a half-loop, and the end 2 has pulled out of the loops 10 and 9, leaving the latter a half-loop, and the adjacent loops 7 and 10 have been pulled out into the straight cross-thread 11 of a double run just started. The next two loops 12 and 13 are just ready to pull out of the loops 14 and 15 to form another cross-bar of a so-called "ladder." Meanwhile the loop 3 in the opposite direction or on the opposite side (see Fig. 2) has become a cross-thread or bar 3′ (see Figs. 3 and 4), and the loop 4 (of Fig. 2) a cross-thread or bar 4′ (see Figs. 3 and 4), and the loop 5 is just about to leave the loop 6 (in Fig. 4).

The foregoing figures illustrate a typical break and the start of a run, which, of course, might extend on indefinitely, or throughout the length of the fabric, and often does, but the foregoing figures will serve to illustrate a typical condition which is to be met and dealt with in the operation of our improved method, with the final result that an invisible mend is rapidly and effectively produced.

The remaining figures of the drawings progressively illustrate in consecutive order the final mend of a reknitted run, and the method by which this mend is made.

B represents any kind of latch needle or needle with means of bridging the hook while being pulled through a loop. Any other instrument or tool may be used in place of the needle which is suitable for the purpose.

On starting the repair of a run, after stretching the fabric over any suitable holder, preferably an egg-cup or the like, as shown at C in Figs. 15 and 16, the first thing the operator does is to take hold of the broken ends 1 and 2, and give them a slight pull in order to prevent further runs and also to provide sufficient length of these ends to be pulled through the final loops with a latch needle to make the final mend. This has the same effect that a snag or pulled thread has, but this is a temporary expedient, and the last step is to re-distribute the loops to restore them to their original place by means of a snagger, or other suitable straight or hooked instrument.

The operator, while stretching the fabric over a suitable holder, proceeds to reknit one run at a time, preferably with a latch needle, and where there is a double run as indicated in one direction in Fig. 5, the operator usually chooses the shorter one, if there is a difference in length; and, in the instance illustrated, we shall assume the one chosen has been reknitted, and the last loop 7 is still on the needle as shown in that figure.

The next step is to return the broken end 1 to its original position in the adjacent half-loop 8 and the loop 7, which are still on the hook. In order to do this, the operator manipulates the needle B somewhat as shown in Fig. 6, and while still holding the loop 7 thereon reaches from beneath up through the half-loop 8 and, after pushing needle B through the loops 7 and 8 until they clear the latch, he grasps the broken end 1 of the thread with the hook. The needle B is then rapidly withdrawn, as indicated by the arrow in Fig. 7, the loop 8 automatically closing the latch, which latch bridges the hook and forming an eye in which the end 1 is disposed. The end 1 is pulled back through the half-loop 8, and thence through the loop 7, making a half-loop, as we term it, of loop 7, and there the end 1 is left, as the hook of the needle B slides off the end 1. This disposition of the end 1 of the thread is shown in Fig. 8.

The operator now reknits one of the other runs, for example the adjacent run, and in Fig. 8 the needle is shown in the last loop 10 of this run, and while this loop 10 is still on the needle, the hook on the needle is inserted through the half-loop 9 adjacent thereto and the end 2 of the thread is grasped by the hook and is drawn successively through the half-loop 9 and through the loop 10, as shown in Fig. 9, making the latter a half-loop; and there it is left temporarily until the run in the opposite direction is reknitted.

By half-loop we mean a loop that is incomplete and has only one instead of both leads of the thread in it.

A single thread in one of these loops or stitches will stop the run. Consequently, when the two runs have reached the stage just

described they are held temporarily against further ravelling.

The operator now proceeds to reknit the single run in the opposite direction, in the same manner as shown in Figs. 5 to 9, and as above described. As a matter of convenience, in doing this, the position of the fabric is preferably reversed on the holder, or the fabric and holder turned 180 degrees.

The operator then proceeds to insert the needle in the last loop at the distant end of the remaining run and reloops or reknits the successive threads. Let us assume that this has been done until the loop 5 (see Fig. 4) has been formed by drawing the thread through the loop 6. Loop 5, being on the needle, thread 4' is picked up and drawn through loop 5, forming loop 4 (Fig. 2) as loop 5, having cleared the latch, has been cast off when the needle was withdrawn with the latch closed. This leaves loop 4 in the hook of the needle. The needle is next inserted into the fabric, loop 4 sliding up the shank to clear the latch. When the needle is withdrawn, thread 3' is caught in the hook and loop 3 is formed (Figs. 2 and 10) in a manner similar to the formation of loop 4. Loop 3 is still on the needle, and as there are no more broken threads, the loops in all of the runs are now reknitted except for the final mend.

The operator pushes the needle through the loop 3 to clear the latch as shown in Fig. 10, and hooks the ends 1 and 2 of the broken thread; the end 1 having previously been drawn through loops 7 and 8 into the half-loop 17, and in so doing completing a loop 17 as well as 16, as viewed in Fig. 10; the end 2 having previously been worked in the same manner on the opposite side. The needle is then withdrawn from loop 3, pulling the ends 1 and 2 through loop 3 where they are temporarily left, as shown in Fig. 12, thereby forming a full loop of loop 3.

The operator now removes the needle and inserts it through the last remaining half-loops 7 and 10, passing said loops over the latch, and grasps the end 2 in the hook, where it is enclosed by the closing of the latch, as shown in Fig. 13, and then, the operator pulls the end 2 of the thread through both of said half-loops 7 and 10, thus completing those loops. The ends 1 and 2 of the thread are then tied together in a knot 18, as shown in Fig. 14, or they may be otherwise fastened together.

This knot is made as tight and small, and with the use of as little of the thread, and as near the very ends, as possible; and any excess thread beyond the knot may be cut off with a pair of scissors and the knot tucked inside. The operator then takes a snagger or other instrument and restores the drawn threads (caused by initially pulling these ends out to the required length) to their normal position, and the mend is completed, and is for all ordinary purposes entirely invisible.

The operations herein above described are preferably made while stretching the fabric over a suitable object which permits manipulation with the hand not occupied with the needle; said manipulations and movements of the fabric assisting in the rapid accomplishment of the mending operation.

Although we have illustrated and described a method in which the operator reknits the double run first, and then the single run, it should be understood that the operator sometimes completes one of the double runs, and then, turns the fabric around and reknits the single run, and by another turn of the goods proceeds to complete the job by reknitting the second of the double runs. The experience of the operator dictates the order in which the runs should be reknitted, this depending very largely on the character of the break and the run, and the exercise of the operator's best judgment.

While we have only shown and described a method of repairing a double run and a single run running in opposite directions, the same principle applies where there are more runs, for instance as many as four or five or any number of runs for that matter.

Also the same method is employed where more than one thread is broken, although we have only described a single break. Where more than one thread is broken, the ends of all but one thread are slightly pulled, fastened to each other and snagged back or restored to their original positions.

We claim:

1. A final repair of a run in hosiery or other knitted goods by fastening the thread ends directly together by means of a latch needle for the combined operation of reknitting and mending the break in the thread.

2. A final repair of the broken thread of a run in hosiery or other knitted goods by bringing the ends directly together by a latch needle, and fastening said ends together without the use of additional thread or material.

3. A final repair of a run in hosiery or other knitted goods without the use of additional thread or material, comprising using a latch needle in reknitting the run and restoring the loops of the run and the broken ends to their original positions, and finally bringing the ends together in the form of the final loop in the reknitted fabric and permanently fastening said ends directly together.

4. A mend in knitted fabric in which the unraveled loops are reknitted and the broken ends are restored to their original positions, all, by a latch needle and said broken ends are fastened directly together.

5. An improved method of repairing runs in knitted goods, which consists in succes-

sively threading the severed ends of the thread, which caused the run, into the loops, where they originally belonged, all, by a latch needle, and finally fastening their ends directly together.

6. An improved method of repairing runs in knitted goods, which consists in reknitting each run, drawing a broken end of the thread into the last loop, forming a half-loop, then successively reknitting any additional runs, drawing one of the broken ends into the last loop to form a half-loop, drawing the broken ends into any remaining half-loops, thus returning said ends to their original positions, all, by the use of a latch needle, and finally fastening the broken ends together.

7. A final repair of a run in hosiery or other knitted goods by fastening the thread ends directly together comprising stretching the goods over a suitable holder other than the operator's fingers, for the combined operation of reknitting and mending the broken thread.

8. A final repair of the broken thread of the run in hosiery or other knitted goods by stretching the goods over a suitable holder other than the operator's fingers, and bringing the ends directly together and fastening said ends together without the use of additional thread or material.

9. A final repair of a run in hosiery or other knitted goods without the use of additional thread or material comprising stretching the goods over a suitable holder, other than the operator's fingers, reknitting the run, restoring the loops of the run and the broken ends to their original positions, and finally bringing the ends together in the form of the final loop in the reknitted fabric and permanently fastening said ends directly together.

10. A mend in knitted fabric in which the unraveled loops are reknitted and the broken ends are restored to their original positions, all, while stretching over a suitable holder other than the operator's fingers, and said ends being fastened together.

11. An improved method of repairing runs in knitted goods such as silk hosiery or the like, comprising stretching the goods over a holder, successively threading the severed ends of the thread which caused the run into the loops where they originally belonged, and finally fastening the ends directly together.

12. An improved method of repairing runs in knitted goods such as silk hosiery or the like, comprising stretching the goods over a holder, reknitting each run, drawing a broken end of the thread into the last loop forming a half-loop, then successively reknitting any additional runs, drawing one of the broken ends into the last loop to form a half-loop, thus returning said ends to their original positions, and finally fastening the broken ends together.

13. An improved method of restoring runs in knitted fabrics, which consists in stretching the goods over a holder, and while stretching inserting an instrument or tool into a loop of a run, reknitting the run with the instrument or tool, then drawing one of the broken ends into the last loop while held on the instrument or tool, reknitting any other run or runs, successively drawing the broken ends of the thread to their original positions, and finally fastening the ends directly together.

14. An improved method of restoring runs, which consists in stretching the broken fabric over a holder, drawing out the broken ends to afford sufficient length to work with, reknitting the several runs while stretching the goods over the holder, successively drawing one of the broken ends into the last loop by the aid of the hook of the needle while withdrawing the needle from the loop, thereby restoring the ends to their original positions, and finally fastening the ends together to form the final loop.

15. An improved method of restoring runs, which consists in stretching the broken fabric over a holder, drawing out the broken ends to afford sufficient length to work with, reknitting the several runs while stretching the goods over the holder, successively drawing one of the broken ends into the last loop by the aid of the hook of the needle while withdrawing the needle from the loop, thereby restoring the ends to their original positions, and finally fastening the ends together to form the final loop, and then re-distributing the threads, which were brought under tension in originally pulling the ends out, to their original positions.

16. An improved method of repairing runs in knitted goods, comprising successively threading the severed ends of the thread which caused the run into the loops, where they originally belonged while stretching the goods over a suitable holder other than the operator's fingers, and finally fastening the ends directly together.

17. An improved method of repairing runs in knitted goods, comprising successively threading the severed ends of the thread which caused the run into the loops, where they originally belonged, while manipulating the goods, and finally fastening the ends directly together.

18. An improved method of repairing runs in knitted goods, comprising successively threading the severed ends of the thread which caused the run into the loops where they originally belonged, while stretching and manipulating the goods, and finally fastening the ends directly together.

19. An improved method of repairing runs or ravelings in a fabric comprising stretch-

ing the fabric over a suitable holder, inserting a latch needle through a loop formed in the run or raveling, continuing this movement on through the fabric while holding the needle laterally out of alignment with the run or raveling until the loop has slid back over the latch, then reversing the movement of the needle through the loop, catching the next forward thread in the hook while the loop is being pulled over the latch causing the latch to close over the thread, and the loop to be cast off over the end of the needle, the thread caught in the hook thereupon forming a new loop, taking the place of the first-mentioned loop, then reinserting the device into the fabric as before, and repeating the operation until the run or raveling has been repaired, and finally bringing the broken ends together and fastening said ends directly together by the needle.

In testimony whereof we have affixed our signatures.

CAROLINE R. DUNN.
ALICE E. RAHN.

Fig. 1.

Fig. 2.

Fig. 3.

Witnesses:
Chas. H. Dellmar

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper, Contents and Drawings, in the matter of the

Abandoned Application of

Frank C. Stephens,

Filed March 22, 1927, Serial Number 177,462,

for

Improvement in Needles.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this sixth day of May, in the year of our Lord one thousand nine hundred and thirty-one and of the Independence of the United States of America the one hundred and fifty-fifth.

ATTEST:

Chief of Division.

Thomas E. Robertson
Commissioner of Patents.

NUMBER. (Series of 1925)
177462

PATENT NO.

1927 DATED

DIV. 21

EX'R'S BOOK) 149

Name FRANK C. STEPHENS

of CLEVELAND

State of OHIO

Invention NEEDLES

Filed 19

Division of Appl. No.

DATE OF EXAMINER AND

ORIGINAL

APPLICATION FILED COMPLETE MAR 22, 1927

Petition, Specification, Oath, First Fee $30, 1 sheets Drawings, MAR 22, 1927

Examined and passed for Issue ____, 19

Exr. Div.

Notice of Allowance ____, 19

By Commissioner.

Final Fee ____, 19

RENEWED

Reexam'd and passed for Issue ____, 19

Exr. Div.

Notice of Allowance ____, 19

By Commissioner.

Final Fee ____, 19

Attorney VERNON E. HODGES 639 F ST N W CITY

Associate Attorney

No. of Claims Allowed ____ Print Claims ____ in O. G. Class ____

Title Allowed

IN THE UNITED STATES PATENT OFFICE

In re: Application of
Frank C. Stephens
Needle
Application executed
March 22, 1927

Amendment to accompany application

Hon., Commissioner of Patents,

Sir:

The accompanying application is being filed on this date for the purpose of an interference with Letters Patent No. 1620580 granted on March 8, 1927, to Ralph A. Howe; with the exception of claim 1, all the claims being exact copies of the claims in the Howe patent, with claim 9 of said patent omitted.

An affidavit is filed herewith under Rule 94 of the Rules of Practice, and it is respectfully asked that an interference be declared between the Howe patent and the present application under the provision of Rule 96.

Respectfully,

W. E. Hodges

Attorney

Washington, D. C.,
March 22, 1927.

IN THE UNITED STATES PATENT OFFICE

In re: Application of
Frank C. Stephens
Needle
Application executed
March 22, 1927

Affidavit

City of Washington)
: ss:
District of Columbia)

I, Frank C. Stephens, of Cleveland, County of Cuyahoga, and State of Ohio, being duly sworn, depose and say as follows, that I am the inventor of a certain improvement in Needles, upon which an application for Letters Patent of the United States of America, is being filed on this date; that I completed said invention as set forth in the claims of said application in this country prior to April 28, 1926, which is the filing-date of an application on which Letters Patent No. 1620550, were granted to Ralph A. Howe; that I do not know and do not believe that the invention has been in public use, or on sale, in this country, or patented or described in any printed publication in this or in any foreign country for more than two years prior to the date of my application, and that I have never abandoned the invention.

Further deponent sayeth not.

Frank C. Stephens

SWORN TO AND SUBSCRIBED before me, a Notary Public, this 22nd day of March, 1927.

(Seal)

Gilbert Purcell
Notary Public

My commission will expire. Oct. 11, 1927

PETITION

To the Commissioner of Patents: 177462

RECEIVED MAR 22 1927 U.S. PATENT OFFICE

YOUR PETITIONER (1) Frank C. Stephens,

a citizen of the United States, residing at Cleveland, in the County of Cuyahoga, and State of Ohio, and whose post-office address is:-348 Hanna Bldg., Cleveland, Ohio,

prays that Letters Patent may be granted to him for the improvement in NEEDLES, set forth in the annexed Specification.

And he hereby appoint s (2)

VERNON E. HODGES

639 F. STREET N. W.,

of WASHINGTON, D. C.,

Register No. 2060 his Attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign his name to the drawings, to receive the Letters Patent, and to transact all business in the United States Patent Office connected therewith.

Signed at Washington, in the District of Columbia, and with ~~the~~ this 22d day of March, 1927.

Frank C. Stephens
(Sign here first name in full)

(1) In case of assignment of the invention, application and oath must be made by actual inventor, even if patent issues to assignee.
(2) If power of attorney be given to a firm, the full name of each member of firm must be given, or it will be ignored.

SPECIFICATION.

To All Whom it May Concern:

BE IT KNOWN, That I, Frank C. Stephens,

a citizen of the United States, residing at Cleveland, in the County of Cuyahoga, and State of Ohio, have invented certain new and useful improvements in NEEDLES, of which the following is a specification.

My invention relates to an improvement in NEEDLES.

The object is to provide a hand-operated needle particularly adapted for mending so-called "runs" in knit fabrics and articles, such as hosiery, sweaters, undergarments, and the like.

The main elements of this needle are a hook and a pivoted latch; and in the successful operation of the needle the latch has alternate intervals of activity and inactivity, and the disposition of the latch after it has functioned to keep the thread caught by the hook confined therein becomes an important factor. In the restoration of each loop of the "ladder" as it is termed, there is an interval when the latch must be out of the way in order to attain the best results and the greatest speed. Its retirement at that interval must be quick. The mechanics of the needle are of such a character that there are but a limited number of ways to accomplish this; and one of these is to reduce the area within the hook to a minimum so that there will be as little lost motion as possible from the normal hooked position of the thread in the hook, to the latch, the striking of which causes the latch to be pushed aside and opened.

My present invention has this general idea in view, and discloses three methods of reducing this area within the

In the accompanying drawings:

Fig. 1 is a view in perspective showing the general plan of operation;

Fig. 2 is an enlarged fragmentary detail in section showing the needle in which the latch is barbed or thickened in order to reduce the space within the hook;

Fig. 3 is a similar view in which the body of the hook is enlarged or barbed instead of the latch;

Fig. 4 is a view showing both needle and latch enlarged or barbed;

Fig. 5 is a view in perspective of the latch shown in Fig. 2;

Figs. 6, 7, 8 and 9 are diagrammatic views, enlarged, illustrative of the action of the needle in mending or repairing a so-called "run" in a knitted fabric.

Referring to Fig. 2, the numeral 1 represents the hook; and 2, is the body portion or shank of the needle.

The numeral 3 represents the latchpivoted at 4 as usual. This latch is thickened to form a barb 5, the function of which is to reduce the space or area 6 within the hook, so that the distance that the needle travels with respect to the thread before it strikes and opens the latch is reduced to a minimum, as compared with the distance which might easily exist if the area and the hook extended nearly to the pivotal point 4. This latch is closed and held clos-

ed by the thread 8, above it, which slides off and over the latch and the thread 7 as the needle is pulled back. Then with the forward motion of the needle, when another thread is to be caught in the hook, the thread 7 by quickly reaching the latch, and its pressure upon its outer or free end causes the latch to swing back out of the way, which is the desideratum as previously explained.

Referring to Fig. 3, the enlargement or barb 5^a is on the shank 2^a of the hook instead of on the latch 3^a, but with the same effect that the area 4^a has in the hook 1^a, and is reduced to a minimum, and for the same purpose as explained in connection with Fig. 2.

In Fig. 4, the area 4^b within the hook 1 is reduced to a minimum by the barb or widened portion 5^b on the pivoted latch 3^b and the thickened portion or barb 5^b on the shank 2^b of the needle, but with the same result as previously explained, namely that the space 4^b is reduced to the smallest practical area, which means that a slight forward movement of the needle is sufficient to cause the thread in the hook and in the path of the latch to strike quickly the latter at its outer or free end, and force it open and out of the way at the interval when the latch would otherwise be in the way and cause trouble.

With this limitation of area within the hook, the latch responds to all intents and purposes, simultaneously, with the forward movement of the needle, and clears the way for the successful operation of the device in the repair of the run, it being alternately opened and closed with the forward and reverse motion of the needle.

Figs. 6, 7, 8 and 9 are illustrative of the method employed and the action which takes place in the mending of a run. The hook 1 is inserted at any point below the run. The needle is then pushed forward as illustrated in Figs. 1 and 7 through the fabric, which latter is held stretched reasonably taut preferably over an egg-cup as Fig. 1 indicates. The needle is pushed on through the fabric until the latch has passed entirely through the loop as illustrated in Fig. 7, and it is pulled backward in the direction of the arrow in Fig. 7, the shank of the needle sliding through the loop 8, and the loop entering between the shank and the end of the latch with the result that the latch is closed just after the thread 9 is caught in the hook, thus confining the latter therein, all of which is illustrated in Fig. 8. The backward pull of the needle is continued until the hook and thread are pulled back through the loop 8 and the thread 9 is drawn with the hook through the loop 8 to form another loop.

As illustrated in Fig. 9, the needle is now again thrust forward in the direction of the arrow of Fig. 9, the thread 9 this time following the course of thread 8 as previously described, that is to say acting to force the latch back out of the way as the needle moves forward until the latch passes entirely through the loop as illustrated in Fig. 7 whereupon the needle is reversed or drawn back in the direction illustrated by the arrow in Fig. 7 and the entire operation is repeated.

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I claim:

1. An article of the character described including a hook and latch so connected and constructed that an enclosure of minimum area is formed within the hook when the latch is closed, with the result that a very slight movement of the device in one direction causes the latch to be opened and pushed out of the way.

2. A needle for repairing fabrics comprising a hook member, a latch member, and a hump on one of said members projecting toward the other member and engageable by a thread to open the latch before the free end of the latch engages the fabric.

3. A needle for repairing fabrics including a hook member and a freely movable pivoted latch member, one of which is provided with a hump coacting with the other member and engageable by a thread to automatically open the latch before the free end of said latch engages the fabric.

4. A needle for repairing fabrics having a shank and a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said latch having a hump coacting with the shank, when the latch is in closed position, and engageable by a thread to open the latch before the free end of said latch engages the fabric.

5. A needle for repairing fabrics having a shank and a hook, and a latch pivoted to the shank and having a head at its extremity to engage the bill of the hook, the said latch being movable to open and closed positions with relation to the hook, the said latch being provided, inwardly of its said head,

with a hump coacting with the shank, when the latch is in closed position, and engageable by a thread to open the latch before the free end of said latch engages the fabric.

#5 6. A needle having a shank and hook at the end of the shank, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said latch having a hump coacting with the shank and provided with a curvilinear thread-engageable surface curved to extend outwardly from the side of the shank when the latch is in closed position whereby to constitute means for effecting accelerated automatic opening movement of the latch through the engagement of the thread with the said hump when the needle is moved in contact with the thread.

#6 7. A needle for repairing fabrics having a shank provided at its end with a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said shank having a shallow recess in its side from which the hook projects, the said latch having a head at its outer end engageable with the bill of the hook in the closed position of the latch and receivable within the recess in the open position of the latch, the outer surface of the said head of the latch being convexly curved in the direction of the length dimension of the latch and a hump on the latch engageable by a thread to open said latch before the free end of the latch engages the fabric.

#7 8. A needle for repairing fabrics having a shank provided at its end with a hook, and a latch pivoted to the shank and movable to open and closed positions with relation

to the hook, the said shank having a shallow recess in its side from which the hook projects, the said latch having a head at its outer end engageable with the bill of the hook in the closed position of the latch and receivable within the recess in the open position of the latch, the outer surface of the said head of the latch being convexly curved in the direction of the length dimension of the latch whereby the extremity of the head will project in spaced relation to the recess in the said open position of the latch to be engageable by a thread when the needle is moved in one direction, the said latch being provided, inwardly of the head, with a hump coacting with the shank, when the latch is closed, and engageable by a thread as the needle is moved in the reverse direction to open the latch before the free end of said latch engages the fabric.

#9 9. A needle for repairing fabrics comprising a hook member, a pivoted latch member, and a hump on one of said members, the free end of the latch member being engageable by a thread to close said latch member when the needle is moved in one direction and the hump being engageable by a thread when the needle is moved in the reverse direction to open the latch before the free end of said latch engages the fabric.

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#10 10. A needle having a shank provided with a tapered portion and a hook at the end of said tapered portion, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, said latch having a hump coacting with the shank and extending transversely across the eye of the needle near the tapered portion of the shank whereby to constitute means for effecting accelerated opening movement of the latch through engagement of a thread with the said hump when the needle is moved in contact with the thread.

#11 11. A needle for repairing fabrics having a hook member, and a latch member pivotally movable to open and closed positions with relation to the hook member, one of the said members having a hump projecting toward the other member and engageable by a thread looped over the hook, the hump being so located with relation to the open side of the hook as to open the latch immediately following entrance of the loop into the open side of the hook and before the free end of said latch engages the fabric.

OATH

City of Washington
District of Columbia } ss.:

Frank C. Stephens,

the above-named petitioner, being duly sworn, deposes and says that he is a citizen of (1) the United States of America, and resident of Cleveland, County of Cuyahoga, and State of Ohio,

that he verily believes himself to be the original, first, and (2) sole inventor of the improvement in NEEDLES,

described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States, on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvement has been filed by him or his representatives or assigns in any country foreign to the United States, except as follows: None

Frank C. Stephens
(Sign here. First name in full)

Sworn to and subscribed before me this 22d day of March, 1927.

Elfaclef Pierce
(Official Signature)

Notary Public.
(Official Character)

(Seal)

My commission will expire. Oct. 11, 1928.

NOTE.—Acknowledgment should be made before a Notary Public, who must affix his seal. If executed before an officer not provided with a seal, the Certificate of the Judge or Clerk of County Court must be affixed, showing official character of such officer.

(1) If any applicant be an alien, the oath must show of what country or sovereign State he is a citizen or subject.

(2) If any application for foreign patent has been filed (under treaties prior to this application, supplement will be required before issuance of patent to show that no patent has been granted on application so filed.

INTERFERENCE

Interference No. 55151 *Paper No.* 2

Name, Frank C. Stephens

Serial No. 177,462

Title, Needles

Filed, March 22, 1927

Interference with Ralph A. Howe

DECISIONS OF

Law Examiner, ... *Dated,* .....

Ex'r of Interferences, Adverse *Dated,* Oct 26/27

Board, ... *Dated,* .....

Commissioner, ... *Dated,* .....

REMARKS:

.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

1233 1233

Div. 21 Sheet 212

Paper No. 3

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

KL/W

Please find below a communication from the EXAMINER in charge of this application

MAR 26 1927

Thomas E. Robertson
Commissioner of Patents

PATENT OFFICE
APR 5 1927
MAILED

Application
Frank C. Stephens
Ser. No. 177,462
Filed Mar. 22, 1927
For Needles

Vernon M. Hodges,
639 F Street, N. W.,
Washington, D. C.

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 55151 On or before MAY 9 1927

the statement demanded by rule 110 must be sealed up and filed, with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. A needle for repairing fabrics comprising a hook member, a latch member, and a hump on one of said members projecting toward the other member and engageable by a thread to open the latch before the free end of the latch engages the fabric.

Count 2. A needle for repairing fabrics including a hook member and a freely movable pivoted latch member one of which is provided with a hump coacting with the other member and engageable by a thread to automatically open the latch before the free end of said latch engages the fabric.

Count 3. A needle for repairing fabrics having a shank and a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said latch having a hump coacting with the shank, when the latch is in closed position, and engageable by a thread to open the latch before the free end of said latch engages the fabric.

Count 4. A needle for repairing fabrics having a shank and a hook, and a latch pivoted to the shank and having a head at its extremity to engage the bill of the hook, the said latch being movable to open and closed positions with relation to the hook, the said latch being provided, inwardly of its said head, with a hump coacting with the shank, when the latch is in closed position, and engageable by a thread to open the latch before the free end of said latch engages the fabric.

Count 5. A needle having a shank and a hook at the end of the shank, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said latch having a hump coacting with the shank and provided with a curvilinear thread-engageable surface curved to extend outwardly from the side of the shank when the latch is in closed position thereby to constitute means for effecting accelerated automatic opening movement of the latch through the engagement of the thread with the said hump when the needle is moved in contact with the thread.

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Count 6. A needle for repairing fabrics having a shank provided at its end with a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said shank having a shallow recess in its side from which the hook projects, the said latch having a head at its outer end engageable with the bill of the hook in the closed position of the latch and receivable within the recess in the open position of the latch, the outer surface of the said head of the latch being convexly curved in the direction of the length dimension of the latch and a hump on the latch engageable by a thread to open said latch before the free end of the latch engages the fabric.

Count 7. A needle for repairing fabrics having a shank provided at its end with a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said shank having a shallow recess in its side from which the hook projects, the said latch having a head at its outer end engageable with the bill of the hook in the closed position of the latch and receivable within the recess in the open position of the latch, the outer surface of the said head of the latch being convexly curved in the direction of the length dimension of the latch whereby the extremity of the head will project in spaced relation to the recess in the said open position of the latch to be engageable by a thread when the needle is moved in one direction, the said latch being provided, inwardly of the head, with a hump coacting with the shank, when the latch is closed, and engageable by a thread as the needle is moved in the reverse direction to open the latch before the free end of said latch engages the fabric.

Count 8. A needle for repairing fabrics comprising a hook member, a pivoted latch member, and a hump on one of said members, the free end of the latch member being engageable by a thread to close said latch member when the needle is moved in one direction and the hump being engageable by a thread when the needle is moved in the reverse direction to open the latch before the free end of said latch engages the fabric.

Count 9. A needle having a shank provided with a tapered portion and a hook at the end of said tapered portion, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, said latch having a hump coacting with the shank and extending transversely across the eye of the needle near the tapered portion of the shank whereby to constitute means for effecting accelerated opening movement of the latch through engagement of a thread with the said hump when the needle is moved in contact with the thread.

Count 10. A needle for repairing fabrics having a hook member, and a latch member pivotally movable to open and closed positions with relation to the hook member, one of the said members having a hump projecting toward the other member and

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engageable by a thread looped over the hook, the hump being so located with relation to the open side of the hook as to open the latch immediately following entrance of the loop into the open side of the hook and before the free end of said latch engages the fabric.

(Counts compared)

This interference involves your application above identified, and

A patent to Ralph A. Howe, of 1863 Mintwood Place, N. W., Washington, D. C., for Needles, patent No. 1,620,550, granted March 8, 1927, Serial No. 105,247, filed April 28, 1926, whose attorneys are Lacey & Lacey, of Barrister Building, Washington, D. C.

Claim 1 of applicant's case is not held patentable over the issue of the interference.

The relation of the counts of this interference to the claims of the respective parties is as follows:

Counts	Howe	Stephens
1	1	2
2	2	3
3	3	4
4	4	5
5	5	6
6	6	7
7	7	8
8	9	9
9	10	10
10	11	11

O. L. Hunter

Examiner.

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Paper # 5. 1236

1101-6 Earle Bldg., Washington, D.C.,
May 1, 1931.

Hon. Commissioner of Patents,

Sir:

Please permit Barrett & Barrett, Victor Bldg., Washington, D.C., to examine and make copies of the file contents and drawings in application of Frank C. Stephens, Serial No. 177462, filed March 22, 1927; and Interference No. 55151, Frank C. Stephens vs. Ralph A. Howe.

Approved May 4, 1931
D. Coldson
Chief Manuscript and Publishing Section

Respectfully,

C. A. Hawley ep

Attorney for Frank C. Stephens

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Div. 21 Room 212 Paper No. 4

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications regarding this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application.

L/JBC

NOV 23 1927

Thomas E. Robertson
Commissioner of Patents.

Vernon E. Hodges,
639 F St. N.W.,
Washington, D.C.

Applicant: Frank C. Stephens

Ser. No. 177462
Filed Mar. 22, 1927
For Needles

Claims 2 to 11 inclusive are finally rejected as a result of Interference No. 55151, terminated adversely to applicant as provided in Rule 132.

Claim 1 stands rejected as not patentable over the issue of said Interference.

A. L. Thurber
Examiner.

N. Lewis

THIS ACTION MUST BE RESPONDED TO WITHIN SIX MONTHS.

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1927

CONTENTS:

UNITED STATES PATENT OFFICE
MAR 25 1927
TEXTILE

1. Application ____ papers.
2. Int. Blank 11-15 27 (Color)
3. Int. Letter APR 5 1927
4. REJECTION NOV 23 1927
5. Power to Attorn Office May 6 1931
6. ____
7. ____
8. ____
9. ____
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17462

2 Sheets-Sheet 1

17,462

G. FIG CLASS SUB CLASS

17,462

Fig 1.

Fig 2.

Fig 3.

Fig 4.

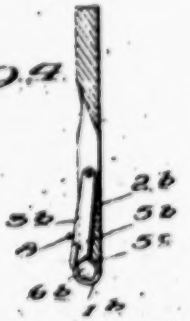


Fig 5.

Inventor
Frank C. Stephens
By Vernon E. Hodges
His Attorney

1240 Serial No 177462 21 1240

2 Sheets-Sheet 2

Fig 6.

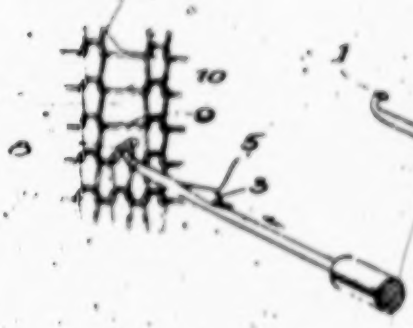


Fig 7.

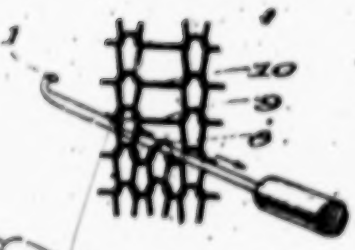


Fig 8.

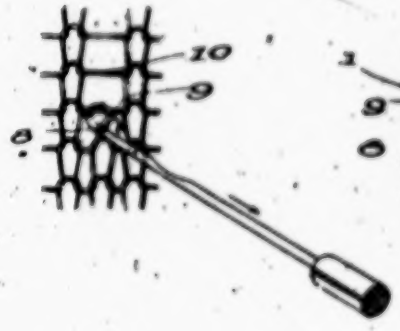
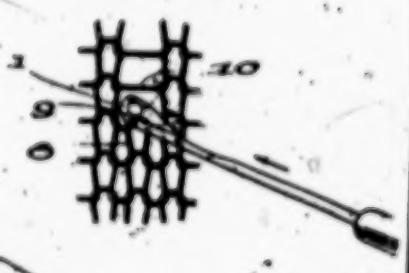


Fig 9.



Inventor
Frank C. Stephens

By Vernon E. Hodges

1226-2 his Attorney

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DEFENDANT'S EXHIBIT Y Y

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of,

Interference Number 55,151,

Stephens vs. Howe,

Subject Matter:-

Needles.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this sixth day of May, in the year of our Lord one thousand nine hundred and thirty-one and of the Independence of the United States of America the one hundred and fifty-fifth.

ATTEST:

Chief of Division.

Thomas E. Robertson
Commissioner of Patents.

No. 55151
Vol. 54 1927
Page 200

INTERFERENCE

Frank D. C. Hitchmol. C. 1774462

vs

Ralph A. Howe Pat. 1620550

Hendlist

1316 DIVISION 21

ML/W WASHINGTON

EXAMINER OF INTERFERENCES: MAR 26 1927

An interference is found to exist between the following cases, and in respect to the invention therein specified, to wit:

CASES

1. Name. Frank C. Stephens

Post office address 348 Hanna Building, Cleveland, Ohio.

Title Needles

Filed March 22, 1927 Ser. No. 177,462 Pat'd No.

Division or continuation of

Attorney Vernon E. Hodges of 639 F Street, N. W., Washington, D. C.

Associate Att'y of

Assignee of

2. Name Ralph A. Howe

Post office address 1863 Wintwood Place, Washington, D. C.

Title Needles

Filed Apr. 28, 1926 Ser. No. 105,247 Pat'd Mar. 8, 1927 No. 1,620,550

Division or continuation of

Attorney Lacey & Lacey, of Barrister Building, Washington, D. C.

Associate Att'y of

Assignee of

3. Name

Post office address

Title

Filed Ser. No. Pat'd No.

Division or continuation of

Attorney of

Associate Att'y of

Assignee of

INTF. NUMBER 55151

INTF. DECLARED APR 5 1927

STATEMENTS DUE MAY 9 1927

INVENTION

Count 1. A needle for repairing fabrics comprising a hook member, a latch member, and a hump on one of said members projecting toward the other member and engageable by a thread to open the latch before the free end of the latch engages the fabric.

Count 2. A needle for repairing fabrics including a hook member and a freely movable pivoted latch member one of which is provided with a hump coacting with the other member and engageable by a thread to automatically open the latch before the free end of said latch engages the fabric.

Count 3. A needle for repairing fabrics having a shank and a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said latch having a hump coacting with the shank, when the latch is in closed position, and engageable by a thread to open the latch before the free end of said latch engages the fabric.

Count 4. A needle for repairing fabrics having a shank and a hook, and a latch pivoted to the shank and having a head at its extremity to engage the bill of the hook, the said latch being movable to open and closed positions with relation to the hook, the said latch being provided, inwardly of its said head, with a hump coacting with the shank, when the latch is in closed position, and engageable by a thread to open the latch before the free end of said latch engages the fabric.

Count 5. A needle having a shank and a hook at the end of the shank, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said latch having a hump coacting with the shank and provided with a curvilinear thread-engageable surface curved to extend outwardly from the side of the shank when the latch is in closed position whereby to constitute means for effecting accelerated automatic opening movement of the latch through the engagement of the thread with the said hump when the needle is moved in contact with the thread.

Count 6. A needle for repairing fabrics having a shank provided at its end with a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said shank having a shallow recess in its side from which the hook projects, the said latch having a head at its outer end engageable with the bill of the hook in the closed position of the latch and receivable within the recess in the open position of the latch, the outer surface of the said head of the latch being convexly curved in the direction of the length dimension of the latch and a hump on the latch engageable by a thread to open said latch before the free end of the latch engages the fabric.

Count 7. A needle for repairing fabrics having a shank provided at its end with a hook, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, the said shank having a shallow recess in its side from which the hook projects, the said latch having a head at its ourer end engageable with the bill of the hook in the closed position of the latch and receivable within the recess in the open position of the latch, the outer surface of the said head of the latch being convexly curved in the direction of the length dimension of the latch whereby the extremity of the head will project in spaced relation to the recess in the said open position of the latch to be engageable by a thread when the needle is moved in one direction, the said latch being provided, inwardly of the head, with a hump coacting with the shank, when the latch is closed, and engageable by a thread as the needle is moved in the reverse direction to open the latch before the free end of said latch engages the fabric.

Count 8. A needle for repairing fabrics comprising a hook member, a pivoted latch member, and a hump on one of said members, the free end of the latch member being engageable by a thread to close said latch member when the needle is moved in one direction and the hump being engageable by a thread when the needle is moved in the reverse direction to open the latch before the free end of said latch engages the fabric.

Count 9. A needle having a shank provided with a tapered portion and a hook at the end of said tapered portion, and a latch pivoted to the shank and movable to open and closed positions with relation to the hook, said latch having a hump coacting with the shank and extending transversely across the eye of the needle near the tapered portion of the shank whereby to constitute means for effecting accelerated opening movement of the latch through engagement of a thread with the said hump when the needle is moved in contact with the thread.

Count 10. A needle for repairing fabrics having a hook member, and a latch member pivotally movable to open and closed positions with relation to the hook member, one of the said members having a hump projecting toward the other member and engageable by a thread looped over the hook, the hump being so located with relation to the open side of the hook as to open the latch immediately following the entrance of the loop into the open side of the hook and before the free end of said latch engages the fabric.

(Counts compared)

The relation of the counts of this interference to the claims of the respective parties is as follows:

Counts	Stephens	Howe
1	2	1
2	3	2
3	4	3
4	5	4
5	6	5
6	7	6
7	8	7
8	9	9
9	10	10
10	11	11

W. L. Thurber

Examiner.

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Post Office Department
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REGISTERED ARTICLE
No 852626 W.D.C.S.
INSURED PARCEL 1927
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WASHINGTON, D. C.

RETURN RECEIPT.

Received from the Postmaster the Registered or Insured Article, the original number of which appears on the face of this Card.

✓ [illegible] Howe
(Signature or name of addressee.)

✓ R. L. Howe
(Signature of addressee's agent)

Date of delivery 4-7 1927

IN THE UNITED STATES PATENT OFFICE.

F. C. Stephens :
vs : Interference No. 55,151.
R. A. Howe :

PRELIMINARY STATEMENT OF RALPH A. HOWE.

District of Columbia: ss

Ralph A. Howe, being duly sworn, deposes and says that he is a party to the declaration of interference declared by the Commissioner of Patents April 5, 1927, between his patent No. 1,620,550, and an application filed by Frank C. Stephens; that he conceived the invention set forth in the declaration of interference about September 23, 1925; and made drawings of the same at that time; that the invention was first explained to others about October 5, 1925; that the invention was first described in writing about October 15, 1925; that a full sized needle embodying the invention was made and successfully operated about October 5, 1925, and that about fifteen complete needles embodying the invention have been made.

Ralph A. Howe

Subscribed and sworn to before me this 4th day of May, 1927.

Louis F. Fuqua
Notary Public. D. C.
My Commission Expires April 15 1930

1248 55151=F

STATEMENT OF Stephens
FILED May 9 1927
APPROVED May 12 1927

IN THE UNITED STATES PATENT OFFICE

RALPH A. HOWE
vs.
FRANK C. STEPHENS.

INTERFERENCE NO. 55151
SUBJECT: NEEDLE

Preliminary Statement
of Frank C. Stephens

CITY OF WASHINGTON)
DISTRICT OF COLUMBIA) ss:

Frank C. Stephens, of Cleveland, in the County of Cuyahoga, and State of Ohio, being duly sworn, doth depose and say that he is a party to the interference declared by the Commissioner of Patents on April 5, 1927, between his application for Letters Patent, filed March 22, 1927, Serial No. 177462, and the patent to Ralph A. Howe, granted March 8, 1927, numbered 1620550, for a Needle;

That he conceived the invention as set forth in the issues of this interference on or before December 1, 1922;

That he first made drawings and sketches of the invention between December 1, 1922 and January 3, 1923;

That between December 1, 1922 and January 3, 1923, he first explained the invention to others;

That on or about February 9, 1923, he made a later disclosure to others;

That he made no model;

(1)

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That he made no written description;

That he first embodied his invention in a full-size needle, sometime between December 1, 1922 and Jenuary 3, 1923, and that during that time the said needle was first successiul-ly operated, in the City of San Antonio, State of Texas; and that he has made a few needles embodying the issues of the interference for his personal use only, none of which are in commercial use.

Frank A. Stephens

SWORN TO AND SUBSCRIBED before me, a Notary Public, this 4th day of May, 1927.

John R. Fletcher
Notary Public

(Seal)

My commission will expire. June 23, 1932

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FORM No. 241 — 2-215

Paper No. 5.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

MCV

MAILED MAY 13 1927, 192

IN RE INTERFERENCE No. 55,151

Stephens
v.
Howe.

Before the Examiner of Interferences.

Please find below a communication from the Examiner in charge of Interferences in regard to the above-entitled case.

Very respectfully,

Thomas E. Robertson
Commissioner of Patents.

The parties to the above-entitled interference are hereby notified that their preliminary statements are approved, and that testimony must be taken, forwarded, and printed in accordance with the published Rules of Practice of the office.

The dates of filing and the Serial numbers of the applications are given, and the times for taking testimony and for final hearing are set as follows:

No testimony to be taken within thirty days (see Rule 109 and paragraph 1 of Rule 122).

Frank G. Stephens filed March 22, 1927, No. 177,462.

Testimony in chief to close August 13, 1927.

Ralph A. Howe filed April 28, 1926, No. 105,247, patented March 8, 1927, No. 1,620,550.

Testimony to close September 13, 1927.

Stephens' rebuttal testimony to close September 28, 1927.

Final hearing November 29, 1927, at 11 a. m.

F. J. Forster

Examiner of Interferences.

DOCKET DIVISION
AUG 4 - 1927

55151-C

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IN THE UNITED STATES PATENT OFFICE

Frank C. Stephens •
vs. • Interference No. 55151
Ralph A. Howe •

STIPULATION

It is hereby stipulated and agreed, by and between counsel for the parties to the above-entitled interference, the Hon. Commissioner of Patents consenting, that the time for taking the testimony in chief of the party Stephens, and all other dates, be extended for a period of sixty days.

Respectfully,

E. Hodges
Attorney for Stephens

Lacey & Lacey
Attorneys for Howe

Washington, D. C.,
Aug. 3, 1927.

1252

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

WASHINGTON

Paper No. 7

Address only the Commissioner of Patents, and not any person by name. 127

PATENT OFFICE AUG 8 1927 MAILED

Please find below a communication from the EXAMINER OF INTERFERENCE in this case.

Thomas E. Robertson
Commissioner of Patents

Interference No. 55151.

Stephens

v.

Howe.

The stipulation filed August 4, 1927, is approved and the times herein are extended as follows:

Testimony in chief of Stephens to close October 13, 1927.

Testimony of Howe to close November 13, 1927.

Rebuttal testimony of Stephens to close November 28, 1927.

Final hearing January 31, 1928, at 11 a. m.

R. D. Lancaster

Examiner of Interferences.

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55151—8.

B-H.B.

PATENT DIVISION

OCT 14 1927

4340-M18

IN THE UNITED STATES PATENT OFFICE.

Frank C. Stephens	:	
vs	:	Interference
Ralph A. Howe	:	No. 55,151.

AFFIDAVIT

District of Columbia: ss

Samuel H. Acker, being duly sworn, deposes and says that he is the sole member of the firm, Lacey & Lacey, attorneys of record for the senior party to the above entitled interference; that no notice of the intention of the junior party, Stephens, to take testimony has been served upon him; that the time granted the junior party, Stephens, to take testimony has expired, and that he believes no testimony on behalf of the junior party, Stephens, has been taken and judgment on the record should be entered in favor of the senior party, Howe.

Samuel H. Acker

Subscribed and sworn to before me this 14th day of October, 1927.

Frances I. Lowman
Notary Public. D. C.

My Commission Expires April 13, 1928

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H.H

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 9.

MAILED
OCT 15 1927

Please find below a communication from the EXAMINER OF INTERFERENCE in this case.

Thomas E. Robertson
Commissioner of Patents

Interference No. 55,151.

Stephens v.

Howe.

The petition under Rule 119 filed by Howe on October 14, 1927, is granted to the extent that notice is given that judgment on the record will be entered against Stephens, the junior party, on account of his failure to take any testimony within the time allowed for that purpose, unless good and sufficient cause is shown by October 25, 1927, why such action should not be taken.

Louis W. Worrell

Acting Examiner of Interferences.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 10

MAILED
OCT 26 1927

Please find below a communication from the EXAMINER OF INTERFERENCE in this case.

Thomas E. Robertson
Commissioner of Patents

Interference No. 55,151.

Stephens v.

Howe.

Whereas Stephens, the junior party, has failed to make any showing why judgment on the record should not be entered against him, in view of his failure to file any testimony within the time allowed for that purpose, and whereas the time allowed for such showing has expired, pursuant to the order of October 15, 1927, priority of invention of the subject matter in issue is hereby awarded to Ralph A. Howe, the senior party.

Limit of appeal November 15, 1927.

Louis Caldwell

Acting Examiner of Interferences.

Stephens

Howe

1.	APR 5 1927	Declaration Statement &c	MAY 9 1927
2.	" 11/27	Reply return rec'd	
3.	May 11/27	Stipulation of Howe	
4.	May 9/27	Statement of Stephens	
5.	" 13 "	Issue set Final Hg Nov 29/27	
6.	Aug 4/27	STIPULATION TO EXTEND TIME for Reply to Ans	
7.	Aug 8/27	Time Stipulated F. Hrg - Jan. 31/28	
8.	Oct. 14/27.	Affidavit for Howe in re judgment.	
9.	Oct. 15/27	O. C. (Rule 44) due Oct. 25/27	
10.	" 26/27	decided for Howe. L.A. Nov. 15/27.	
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Reasons mailed Nov 21-1927 by L. Shortridge Dep'y Clerk

55151-15

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ATTORNEYS

Frank C. Stephens,
% Vernon E. Hodgell,
639 F St., N.W.,
Washington, D. C.

Ralph A. Howe,
% Lacey & Lacey,
Bowen Bldg.,
Washington, D. C.

$7 16

(No Model.)

1258

L. JONES, Jr.

LATCH OPENER FOR KNITTING MACHINES.

No. 386,636. Patented July 24, 1888.

Fig. 1.

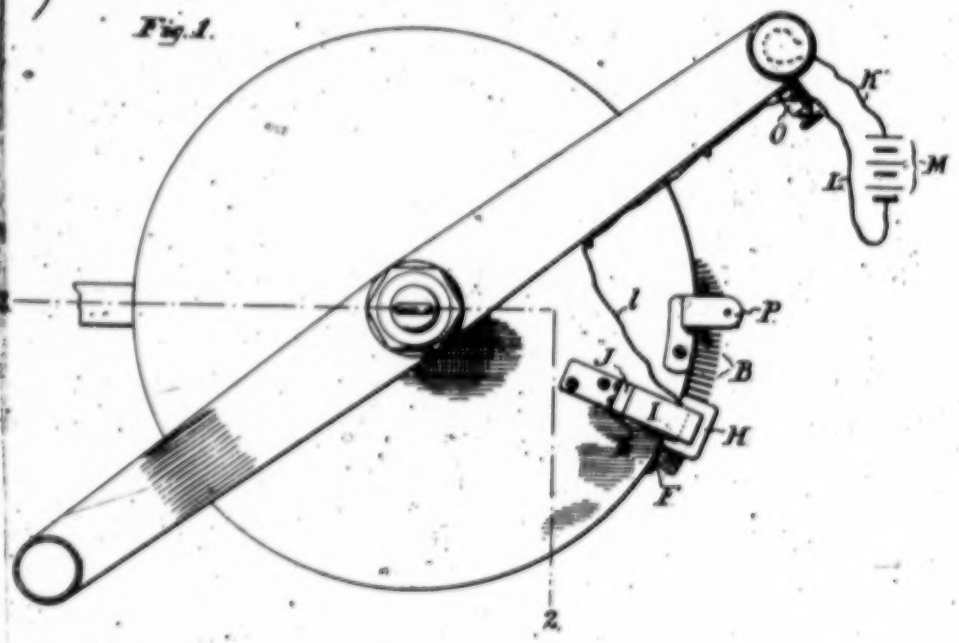
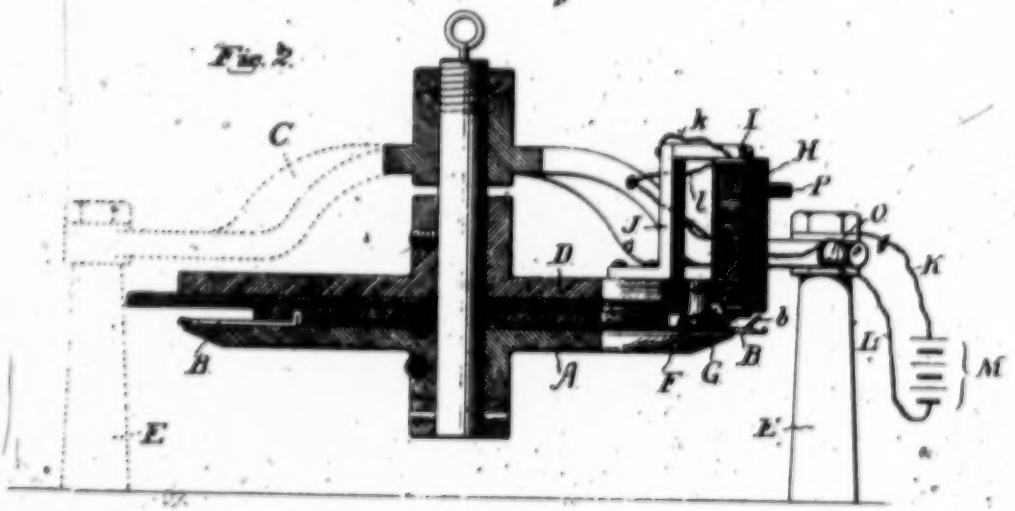


Fig. 2.



WITNESSES:

James A. Bell

Edward P. Burket

INVENTOR.

Lewis Jones Jr.

By Hollingsworth & Fahy

Attorneys.

UNITED STATES PATENT OFFICE.

LEWIS JONES, JR., OF OVERBROOK, PENNSYLVANIA.

LATCH-OPENER FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 286,636, dated July 24, 1883.

Application filed April 14, 1883. Serial No. 379,718. (No model.)

To all whom it may concern:

Be it known that I, LEWIS JONES, Jr., of Overbrook, in the State of Pennsylvania, have invented certain new and useful Improvements in Latch-Openers for Knitting-Machines, whereof the following is a specification, reference being had to the accompanying drawings.

My invention is particularly adapted for use in connection with that class of circular-knitting machines in which a "dial-plate" or horizontal rotating disk is employed to carry a horizontal series of needles, and in the accompanying drawings I have illustrated the invention as thus embodied.

Figure 1 is a partial top or plan view of the machine, and Fig. 2 is a partial vertical section through the center of the dial-plate.

As my improvements only relate to certain limited portions of the mechanism, I have omitted from said drawings all the remaining parts of the machine whose construction is well understood.

In the use of this class of machines a difficulty frequently occurs, owing to the fact that the latches of the horizontal series of needles do not open at the proper time to receive the thread, and hence defective work is produced.

The object of my invention is to insure an opening or raising of the latch just before the needle in rotating reaches the thread-guide, and I accomplish this by arranging at the proper point in the time of rotation, and in the requisite proximity to the plane of rotation of the needle-latches, a magnet of sufficient energy to raise them as they pass it into approximately vertical position.

In the drawings, A represents the rotating dial-plate, carrying the needles B, only two of which are shown in order to avoid confusion. Said needles, of course, have their latches *b* uppermost.

The vertical series of needles, whose arrangement and function are well understood, is not shown in the drawings.

C is the cross-head which supports the dial-plate system and its operating-cams.

Upon the stationary plate D is mounted the thread-guide P, and at a short distance upon that side thereof toward which the horizontal needles in rotating approach I mount a vertical electro-magnet, H. This may be conveniently constructed and supported, as shown in Fig. 2—that is to say, the right-angled piece I, of soft iron, is secured at one end to a vertical standard, J, mounted upon the top of the stationary plate D. The other leg of the said right-angled piece I carries the helix, one of whose terminals, K, is connected at a convenient point with any part of the metal frame of the machine, while the other, *l*, is carried through suitable supporting-eyes to a binding-post, O.

The lower end of the core of the electro-magnet is arranged a short distance above the plane of rotation of the needle-latches *b*, and I prefer to provide upon the side toward which the needles move a curved guard-plate, G, of brass, to prevent any needle which may accidentally be displaced from flying up against the magnet and attaching itself thereto. The ordinary guide-plate, F, may, however, be found sufficient to accomplish this result.

A galvanic battery, M, or the source of electro energy, has one of its poles connected by the wire L with the binding-post O, while the other pole is connected by the wire K with some portion of the metallic frame of the machine.

When the magnet is energized, the needle-latches *b* in passing under it are raised into the position indicated upon the right-hand side of Fig. 2, and because of the proximity of the magnet to the thread-guide P they will retain this position until the taking hold of the thread is thus insured.

I have described what I consider the most advantageous embodiment of my invention; but I do not wish to be understood as limiting myself to such an arrangement. Thus a permanent magnet might be employed in place of the electro-magnet, or the form of the latter may be varied, and obviously any method of producing the necessary electric current may be employed without varying the principle of my invention.

I claim—

1. The combination, with the series of horizontal needles and the thread-guide, of a magnet arranged above the plane of rotation of

the needle-latches and in advance of the thread-guide, substantially as and for the purpose set forth.

2. The combination, with the series of horizontal needles, the thread-guide, and the magnet arranged above the plane of rotation of the needle-latches and in advance of the thread-guide, of a guard-plate arranged at that side of the magnet toward which the needles approach.

LEWIS JONES, JR.

Witnesses:
E. P. BURKET,
GEORGE W. WORMAN.

DEFENDANT'S EXHIBIT B B B

1261

ERNST HEINRICH TH. HARTIG IN SEHMA I. S.

Magnetischer Zungenöffner für Zungennadeln.

Fig. 1.

Fig. 2.

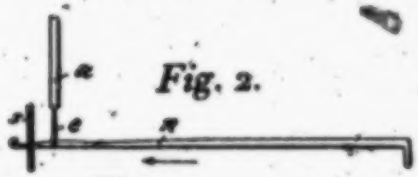


Fig. 3.

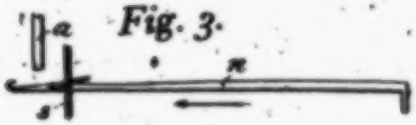


Fig. 4.

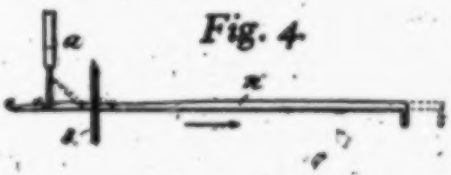


Fig. 5.

Zu der Patentschrift

№ 106861.

PHOTOGR. DRUCK DER REICHSDRUCKEREI

Defendants' Exhibit BBB. 3787

Translation of German patent No. 106861, class 25a 21, to ERNST HEINRICH TH. HARTIG of Sehma i. S. patented in Germany from March 28, 1899, published Dec. 18, 1899.

Magnetic Latch Opener for Latch Needles.

In the case of latch needles such as find employment in knitting and allied machines it is necessary, as is known, for certain tasks to open the latches at certain times. For this purpose special latch openers are installed which consist of knife like 3788
edges or as in patent No. 30241 of brushes or as in patent 102914 of a combination of the two. These latch openers do not however fulfil their purpose satisfactorily; on the contrary it frequently happens that the edge or brush does not grip the latch and that the opening of the same is interrupted whereby disturbances in the operation result. Also springs have been attached to the needles themselves which in the two end positions of the latch act on the same and care for the opening of the same; these needles are however very expensive to manufacture and furthermore this means is in no way reliable, as the springs which may be attached to the needles are so weak that they very easily 3789
break or fail in other ways.

By the foregoing invention a new, certain acting, and thereby simple and lasting means for opening the latches of latch needles is afforded. According to the foregoing invention by means of magnetic rods or the like suitably arranged on the machine and actuated by the same in the proper way the latches are lifted to the top and thereby opened.

The accompanying drawing gives a constructional example of the invention in outline. A mag-

3790 *Defendants' Exhibit BBB.*

netic rod a is attached to a rod b. The rod b is supported on the machine in a suitable manner (not shown because optional) eccentric or the like and by the same is so moved up and down as well as forward and backward that the magnet rod a follows the motion of the needle and if the opening of the latch is to be effected is lowered to the tip of the latch so that the same will be attracted. Fig. 1 shows the needle n in action. Before for instance the needle passes through the meshes of the weft s the magnet rod a moves down toward the latch c
3791 of the needle, attracts the same, lifts and opens the latch. Fig. 2 shows the needle in passing through the weft, the needle c entirely erect which now shifts to the other side. Fig. 3 shows the needle moved still further forward, the shifted latch passing through the weft. Before the backward motion of the needle the magnetic rod a also moves forward the proper amount and then at the right time goes down on to the latch c in order to lift the same, Fig. 4, whereupon the latch is again shifted forward through the weft before the backward motion, as indicated by dotted line in fig. 4. The magnet rod is also meanwhile lifted and moved backward
3792 in order to, in the following operation of the needle, drop again on the latch c in order to open the same,

In many cases the position of the weft s may be hindersome to the forward and backward motion of the magnet rod a before and after the same. In this case as fig. 5 shows two magnet rods a or the like attached to the rod b one of which cares for the opening of the needle latch in front of the weft and the other after the weft and which accordingly does not need to be moved or only so little forward and backward as is necessary in order to follow the needle latch in the opening motion. Instead of two

Defendants' Exhibit BBB. 3793

also a greater number of magnet rods or other magnetic bodies could be used. It also seems possible that a magnetic body could care for the opening of the latches in the case of a plurality of needles so that special magnets are not necessary for each individual needle.

Patent claim:

Latch opener for latch needles distinguished by the fact that the opening of the latches is effected by one or more magnets which are moved by the machine in such a way that they approach the 3794
latches at the correct time and open the same by attraction.

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3796 **Opinion, Woolsey, D. J.**

UNITED STATES DISTRICT COURT,

THE STELOS COMPANY, INCORPORATED,
Plaintiff,
v.
HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation,
Defendants.

In Equity No. 48-16.

3797

SOUTHERN DISTRICT OF NEW YORK.

On final hearing of a suit based on a patent Re 16,360, reissued on June 8, 1926, to Frank C. Stephens for a needle and its method of use, being based on application filed March 23, 1926, for the reissue of Stephens' patent U. S. No. 1,564,379, applied for September 25, 1923, and allowed December 28, 1925.

DANIEL BURKE, Esq., solicitor for plaintiff, by VERNON E. HODGES, Esq. and HENRY GILLIGAN, Esq., both of Washington, D. C., of counsel.

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JULIAN S. WOOSTER, Esq., solicitor for defendants Hosiery Motor-Mend Corporation and Kayser Hosiery Motor-Mend Corporation, by JULIAN S. WOOSTER, Esq. and DONALD MALCOLM, Esq., of counsel.

Messrs. HARDY, STANCLIFFE & HARDY, solicitors for defendant Julius Kayser & Company, by HUGH M. MORRIS, Esq., of Wilmington, Delaware, NOAH A. STANCLIFFE, Esq., and JUSTIN L. FEARING, Esq., of counsel.

WOOLSEY, *J.*:

My judgment in this case is that the complaint must be dismissed as to all three defendants, with costs.

I. This is a suit under the patent law by the plaintiff as owner by assignment from Frank C. Stephens of Patent Re. No. 16,360, reissued June 8, 1926 for the unexpired term of Stephens' patent U. S. No. 1,564,379, granted to him on December , 1925 as a result of an application filed on September 25, 1923. 3800

The complaint is based on the alleged infringement of Claim 23 of said reissue. This is a claim for an improved method of repairing runs or ravelings in knitted fabric.

This suit was originally brought in February 1929 against the Hosiery Motor-Mend Corporation which, whilst the case was pending on May 17, 1929, sold some of its assets to the Kayser Hosiery Motor-Mend Corporation. This Company did not assume any liabilities of its vendor. Julius Kayser & Company is named defendant on the theory of corporate identity based on the claim that the Kayser Hosiery Motor-Mend Corporation, although a separate Corporation, is actually a branch or department of Julius Kayser & Company. 3801

The defenses to the plaintiff's claim in its patent aspects are (1) that the patent is invalid, and (2) that, if it be valid, the defendants do not infringe; and, in its corporate aspects, that there is not any such identity between the two Kayser Corporations as would justify the Court in disregarding the fact that they are separate entities, and thus holding Julius Kayser & Company liable in the event of a recovery by the plaintiff.

3802 *Opinion, Woolsey, D. J.*

II. Claim 23 of the Reissue No. 16,360 on which this suit is based,—broken into paragraphs in order clearly to show the several elements of the plaintiff's method—reads as follows:

"23. An improved method of repairing runs or ravelings in a fabric which consists in stretching the fabric over a suitable holder inserting a repairing device having a hook and pivoted latch through a loop formed in the runs or ravelings,

3803 continuing this movement on through the fabric while holding the device laterally out of alignment with the run or raveling until the loop has slid back over the end of the latch and beneath the latter,

then reversing the movement of the device through the loop

catching the next forward thread in the hook while the loop is being pulled over the latch causing the latch to close over the thread, and the loop to be cast off over the end of the device, the thread caught in the hook thereupon forming a new loop, taking the place of the
3804 first described loop,

then reinserting the device into the fabric as before, and repeating the operation until the run or raveling has been repaired, and finally fastening the thread."

The method which the plaintiff claims is thus taught is the use of an egg cup of pottery or china over which to stretch the fabric and the manipulation of the needle by what has been described in the argument as a punch method, i. e. up and down

through the fabric, whilst the needle is held at a substantial angle therewith,—thus following the line of the run until the run is closed.

In his specifications, Stephens says (italics mine):

> "In repairing the runs or ravels in knitted goods, other methods have been used, but they are not practical, as the method of use is a tedious one, and trying both to the eyes and patience of the operator. In other words, the fabric is stretched over the finger tip, making it difficult to insert the hook beneath the 3806
> thread. This objection is obviated in the present invention by *stretching the fabric over a porcelain dish allowing sufficient depth for the free use of the needle.*
>
> "With other needles and their methods of use, the stretching of the fabric over the finger tip makes it difficult to see the separate threads, while with my invention and its method of use a whole background is provided, making it possible to see the threads of any fabric, and of any color. *It is impractical to use other needles with my method.*"

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The infringement claimed is by the defendants' use of what they call the Vanitas system of mending runs in which the repair is achieved with a Finch sliding *latch* needle electrically operated whilst the fabric to be repaired is stretched over a metal holder approximately resembling in form the egg cup of the plaintiff's commercial method.

III. I am pressed by the plaintiff with the fact that Claim 23 has been thrice sustained—once by Judge Otis in the Western District of Missouri in

the case of *The Stelos Co., Inc.* v. *Stark;* once by Mr. Justice Stafford in the Supreme Court for the District of Columbia in the case of *The Stelos Co., Inc.* v. *Finch Corporation;* once by Judge McVicar in the Western District of Pennsylvania in the case of *The Stelos Co., Inc.* v. *Emory J. Gearhart;* and that Mr. Justice Stafford's decision was affirmed on appeal by the Court of Appeals for the District of Columbia in *Finch Corporation* v. *The Stelos Co., Inc.,* 46 F. (2d) 606.

In all these cases—even that which was tried in
3809 Missouri—the Judges seem to have taken the egg cup for granted. That I find myself unable to do.

IV. In the instant case the plaintiff's situation has been ventilated by the defendants here much more thoroughly than by any of the respective defendants in the cases above mentioned.

The defense of a patent against infringement often involves battles on many fronts, and the tactics of one defendant may so differ from that of others as to create an entirely new situation. So it is here.

Apparently the contention was never pressed, or, at least, never strongly pressed, in the previous
3810 cases that the egg cup, which is one of the most important elements in the plaintiff's method, was not properly disclosed in the plaintiff's patent.

Patentees belong to a unique class for, apparently, they alone, of all mankind, are expected always to practice only what they preach. Necessarily, therefore, they are required to preach what they intend to practice.

So it is now settled law that the disclosure of a patent must be so clear as to enable an ordinary workman skilled in the art involved to practice the

invention without further experiment, for it is only by this full disclosure that the patentee gives the consideration which he owes to the public for the monopoly granted to him by the patent law. *Beidler* v. *U. S.*, 253 U. S. 447, 453; *Loom Co.* v. *Higgins*, 105 U. S. 580, 588, 589; *Health Products Corporation* v. *Ex Lax Manufacturing Company, Inc.*, 22 F. (2d) 286, 287 (C. C. A. 2); *Lockwood* v. *Faber*, 27 Fed. 63; *Badische Anilin, etc.* v. *Levinstein*, L. R. 29 Ch. Div. 366, 412-414.

A fortiori, of course, the disclosure must not be so vague as to require the exercise of inventive skill 3812
in order to practice the invention in the most approved fashion. *Neilson* v. *Harford*, 1 Web. 331; *Morgan* v. *Seaward*, 1 Web. 170, 2 Add. Patent Cases 262; *R.* v. *Arkwright*, 1 Web. 64, 1 Abb Patent Case 29.

The reason for this is that the disclosure of a patent is not addressed to persons of extraordinary skill and imagination but merely to the ordinary workman who is capable of using the amount of skill and intelligence fairly to be expected from him the practice of his art, whatever that may be. Cf. *Plimpton* v. *Malcolmson*, L. R. 3 Ch. Div. 531, 568-569, per Jessel, M. R.

Furthermore, as Baron Alderson said in *Morgan* 3813
v. *Seaward*, 1 Web. 170, at 174:

> "If a patentee is acquainted with any particular mode by which his invention may be most conveniently carried into effect he ought to state it in his specifications."

For example, a class of objects cannot be described as an element of a combination unless every object of that class will answer its purpose as an element thereof. *Schneider* v. *Thill*, 21 Fed. Cas.

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715, 716, 5 Bann. & A., 565; *Turner* v. *Winter*, 1 Webb 77, 1 Abb. Patent Cases 43.

So, if in a chemical process patent the disclosure uses terms applicable to several substances, only one of which will answer to achieve the result of the process, the disclosure is insufficient. *Badische Anilin, etc.* v. *Levinstein*, L. R. 29, Ch. Div. 366, 412-414.

The public is entitled to all the knowledge which the inventor has in regard to his invention, and if a process can be achieved both by an expensive and
3815 a cheap element, the patentee must disclose the cheap element as well as the expensive element so that the public may have the same advantage after his monopoly ceases as the patentee had during the monopoly period. *Turner* v. *Winter*, 1 Web. 77, 81; *Wood* v. *Zimmer*, 1 Web. 82; *Savory* v. *Price*, 1 Web. 83; *Sturtz* v. *Del la Rue*, 1 Web. 83.

I turn now to the present patent. The generic term "dish" is used in the specification in describing the holder over which the fabric should be stretched in order to practice the plaintiff's patent. Cf. *specifications*, page 1, lines 11 to 14.

In the method Claim 23, however, the patentee
3816 merely refers to a "suitable holder" and that seems to me to leave the matter too much at large.

It might have been quite possible for Stephens to have referred to an egg cup as a preferred holder for use in his method of mending runs and have justified reference to it on the ground that it was a species of dish. In doing this he would, I think, have been warranted by the meanings given to the word "dish" in Murray's Oxford English Dictionary and Webster's International Dictionary, for in both "cup" is included among its subsidiary meanings. The most familiar example of this use of

"dish" is, of course, "a dish of tea"—often referred to in English literature of the Eighteenth and early Nineteenth Centuries.

But, however this may be, the use of the word "dish" for "cup" is antiquated and almost obsolete, and I am thoroughly satisfied that an egg cup would not have been suggested to anyone who read the patent by the use of the words "suitable holder" after the specification of a "porcelain dish".

I am inclined to feel that the use of the punch method of handling the needle at a substantial angle with the plane of the fabric and the use of 3818
the egg cup for the stretching and manipulation of the fabric were in a sense the result of the experience of trying to operate the patent in the vague and rudimentary form of its disclosure.

Whether I am right or wrong about this, in any event it is admitted by Stephens in his evidence that the device of the egg cup was the result of considerable experiment. He thinks he worked it out in July or August 1923, but he was not able to produce a single contemporaneous record of its use in the practice of this patent, although he says that he thinks he told his attorney Mr. Hodges about it.

Now the application for the original patent was made on September 5, 1923, and it was Stephens' 3819
duty as applicant for a privilege to have included in his application—both in his specification and in his claim—a definite description of the appliance by which his method patent should be practiced.

There is not, however, any hint of the egg cup even in the reissue patent for which application was made on March 23, 1926, upwards of four months after the original patent, No. 1,564,379 was granted.

As a result of this, it seems to me that Stephens finds himself in this dilemma: Either he did know

the preferred method of practicing his patent and failed to disclose it in his specification or in his method claim, or else his commercial practice, which it is claimed the Vanitas method of the defendants using the Finch needle infringes, is a much changed outgrowth of his patented practice due to experience therewith subsequent to the granting of his patent.

No matter which alternative the plaintiff chooses it must, for the reasons above given, fail in this case.

3821 I do not believe that from reading the disclosure of the first Stephens Patent U. S. No. 1,564,379, or its reissue Re 16,360, the ordinary person who practices the art of repairing runs could possibly have evoked an egg cup except after a considerable amount of experimentation and, consequently, it seems to me that the patent is invalid for want of adequate disclosure.

To me this failure of disclosure is a most obvious reason for dismissing the complaint. In case, however, the Court of Appeals should differ with me on this question, I shall now deal with some of the other defenses.

3822 V. Assuming that I am not correct in my decision as to disclosure, I do not think that in view of the prior art the plaintiff has shown any patentable subject matter.

I think that Pogson's application of September 15, 1921, shows that the material to be mended must have been stretched over something and showed practically the same method of manipulating the needle as the Stephens patent later did.

Furthermore, I think that the Ceska patent, U. S. 1,337,884, granted April 20, 1920, for an improved

darner, a device looking very much like a calabash pipe,—which was considered by the Patent Office to be a patentable improvement on the old egg-shaped darners,—showed a holder which, with such slight modifications as would be merely the result of a low form of mechanical intelligence, could be changed into the "suitable holder" of Stephens' method claim.

Certainly Ceska's patent was in a cognate art to the art of Stephens' patent, and if Stephens' egg cup can be considered as disclosed in his Claim 23, its use as a holder for the fabric to be restored is 3824 not an instance of the exercise of the inventive faculty over Ceska.

I think, therefore, that Stephens was not entitled to a patent for his method which is the only subject matter of the present suit.

VI. When I come to the question of infringement, I feel equally clear.

Even if it be assumed that the Stephens patent discloses a punch motion through the fabric with the needle held at a substantial angle therefrom—and perhaps it is fair to say that there is a slight hint of such a motion implicit in the words used in the first part of the specification in reference to "a 3825 porcelain dish allowing sufficient depth for the free use of the needle,"—I think that when it comes to the needle employed by the defendants, the plaintiff cannot invoke the doctrine of equivalence in the method used by the defendants.

Stephens' original claim which was rejected on Pogson and cancelled—paragraphed to show the steps of the method—reads thus:

"Claim 10. A method of needle work which consists in

3826 *Opinion, Woolsey, D. J.*

stretching the fabric over a suitable holder and

inserting a needle having a magnetized curved hook, a magnetized curved latch or bridge, and a bevelled side-guard, through the loop of a run or ravel,

grasping the adjacent thread with the latch, forcing it into the hook pulling the thread through the loop,

grasping the next thread, forcing it into the
3827 hook and pulling it through the loop formed, etc.,

until the run or ravel is repaired."

The insertion of the word "pivoted" in the method claim finally put forward by Stephens in his first patent, after disallowance of his original method claim no. 10, narrowed the claim so that it did not cover all kinds of needles usable for knitting but merely "pivoted" latch needles.

The use of the pivoted latch needle disclosed by Stephens so magnetized as to make the hook repel the latch and thus open it on the forward stroke is
3828 ineradicably a part of the plaintiff's method, because the description in Claim 23 of the operation of Stephens' needle device does not describe anything except a pivoted latch needle, and he says in his specification that "it is impractical to use other needles with my method".

He says that the needle is inserted into the run or ravel:

"until the loop has slid back over the end of the latch and beneath the latter, then reversing the movement of the device through the loop,

catching the next forward thread in the hook while the loop is being pulled over the latch causing the latch to close over the thread."

With the defendants' sliding latch needle the loop never gets *"beneath"* the latch nor does the needle catch *"the next forward thread in the hook while the loop is being pulled over the latch"*.

Furthermore, it is to be remembered that in his specification, page 1, lines 24 to 35, Stephens has emphasized the fact that in his magnetic needle the latch or bridge is opened by the magnetism and is 3830
not forced open by the thread. Therefore, a thread opened needle, such as the defendants' sliding needle, is specifically excluded from Stephens' monopoly.

The defendants' method, therefore, is not the same as the plaintiff's method because the defendants use a needle which is a radical departure from the plaintiff's needle.

That the result reached is the same is immaterial because it is not reached in the same way.

Though the question of infringement is nice, and may, perhaps, be said to turn on the point of a needle, it is at just that point that the plaintiff, 3831
as Stephens' assignee, finds itself estopped, for in view of the Patent Office history of the Stephens' patent it cannot, by the doctrine of equivalence or otherwise, secure a construction for its method Claim 23 which will cover the defendants' needle and make its present method claim as broad as the Claim No. 10 in the rejection of which Stephens acquiesced. *Smith* v. *Magic City Club*, 282 U. S. 784, 789, 790; *I. T. S. Rubber Co.* v. *Essex Rubber Co.*, 272 U. S. 429, 444.

3832 *Opinion, Woolsey, D. J.*

VII. In view of the above findings it becomes unnecessary to discuss the relationship between the Kayser Hosiery Motor-Mend Corporation and Julius Kayser & Company, or the legal implications arising therefrom.

VIII. This opinion may stand as the findings of fact and conclusions of law required under Equity Rule 70½, Title 28, U. S. Code, Sec. 723, and I will sign an order so providing. *Hazeltine Corporation* v. *Radio Corporation*, 52 F. (2d) 504, 512; *Lewys* v. *O'Neill*, 49 F. (2d) 603, 618; *Briggs* v. *U. S.*, 45 F. (2d) 479, 480 (C. C. A. 6). Cf. also *El Sol*, 45 F. (2d) 852, 856, 857.

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An order to this effect may be separately presented or embodied in the final decree dismissing the complaint with costs and presented to me for signature on three days' notice.

March 23, 1932.

WOOLSEY,
United States District Judge.

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Order.

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At a stated term of the United States District Court for the Southern District of New York, held in the old Post Office Building, New York City, in the County and State of New York, on the 11th day of April, 1932.

Present—Hon. JOHN M. WOOLSEY,
United States District Judge.

THE STELOS COMPANY, INCORPORATED,
Plaintiff,

v.

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation,
Defendants.

3836

In Equity No. 48-16.

The Court having filed a written opinion herein on March 23, 1932, it is therefore

ORDERED that the opinion of this Court, on Final Hearing, filed on March 23, 1932, stand as the findings of fact and conclusions of law and be deemed to constitute the formal decision herein as required by Equity Rule 70½.

3837

WOOLSEY,
United States District Judge.

Approved as to form:

DANIEL BURKE,
Solicitor for Plaintiff.

J. S. WOOSTER,
Solicitor for Defendants,
Hosiery Motor-Mend Corporation and Kayser Hosiery Motor-Mend Corporation.

HARDY, STANCLIFFE & HARDY,
Solicitors for Defendant,
Julius Kayser & Company.

3838 **Final Decree.**

At a stated term of the United States District Court for the Southern District of New York, held in the old Post Office Building, New York City, in the County and State of New York, on the 11th day of April, 1932.

Present—Hon. JOHN M. WOOLSEY,
United States District Judge.

3839 THE STELOS COMPANY, INCORPORATED,
Plaintiff,
v.
HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation,
Defendants.

In Equity No. 48-16. Patent Reissue No. 16,360.

This cause came on to be heard at final hearing on pleadings and proofs, and was argued by counsel; and thereupon, upon consideration thereof, it
3840 was

ORDERED, ADJUDGED AND DECREED as follows, viz:

That Claim 23 of Reissue Letters Patent of the United States No. 16,360, issued June 8, 1926, to Frank C. Stephens, assignor to plaintiff, for Improvements in Needle and Its Method of Use, is invalid in law; and that the above named defendants have not infringed same; and that the bill of complaint be and the same hereby is dismissed with costs to defendants to be taxed by the Clerk and

defendants have judgment and execution therefor, unless within twenty days of the date hereof an appeal be perfected.

Dated, New York, N. Y., April 11, 1932.

WOOLSEY,
United States District Judge.

Approved as to form:

J. S. WOOSTER,
Solicitor for Defendants,
Hosiery Motor-Mend Corp. and Kayser Hosiery Motor-Mend Corp. 3842

HARDY, STANCLIFFE & HARDY,
Solicitors for Defendant,
Julius Kayser & Company.

3844 **Petition for Appeal.**

IN THE

DISTRICT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED, Plaintiff, v. HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, Defendants.	In Equity No. 48-16. Patent Reissue No. 16,360.

3845

The plaintiff, The Stelos Company, Incorporated, feeling aggrieved by the Final Decree made and entered in this cause on the 11th day of April, 1923, does hereby appeal from the said Final Decree to the Circuit Court of Appeals of the United States for the Second Circuit, for the reasons specified in the Assignment of Errors, filed herewith; and it prays that this appeal be allowed and that citation issue, as provided by law, and that a transcript of the record, proceedings and papers in this cause, duly authenticated, may be sent to the United States Circuit Court of Appeals for the Second Circuit, and that said Final Decree be reversed.

3846

Petitioner further prays that the proper order relating to the security to be required of it to perfect its appeal be passed, accepting the existing cost bond of Seven Hundred and Fifty Dollars as part

3847

thereof, said total security to operate as a supersedeas of the Final Decree rendered in the said District Court.

Dated at New York this 29th day of April, 1932.

By
HENRY GILLIGAN,
VERNON E. HODGES,
Attorneys for Plaintiff.

DANIEL BURKE,
Solicitor for Plaintiff.

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Order Allowing Appeal With Supersedeas.

IN THE

DISTRICT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED, Plaintiff, v. HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, Defendants.	In Equity No. 48-16. Patent Reissue No. 16,360.

3851

Upon consideration of the Petition for Appeal of The Stelos Company, Incorporated, made on its behalf by Messrs. Vernon E. Hodges and Henry Gilligan, its attorneys, dated April 29th, 1932, it is

ORDERED that the appeal herein be allowed as
3852 prayed for, and that a supersedeas bond in the amount of $3900.00 be filed by plaintiff, and it is further

ORDERED that a certified transcript of the record, proceedings and papers be transmitted to the United States Circuit Court of Appeals for the Second Circuit.

Dated, New York, 29th April, 1932.

FRANK J. COLEMAN,
United States District Judge.

C. W.

Assignment of Errors. 3853

IN THE

DISTRICT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED, Plaintiff, v. HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, Defendants.	In Equity No. 48-16. Patent Reissue 16,360. 3854

And now comes the plaintiff, The Stelos Company, Incorporated, by Messrs. Vernon E. Hodges and Henry Gilligan, its attorneys, and files the following assignment of errors upon which it will rely in the prosecution of its appeal in the above entitled case:

I. 3855

The Court erred in declaring claim 23 invalid because anticipated.

II.

The Court erred in finding and holding that defendants' method is not an infringement of the Stephens' method claim.

3856 *Assignment of Errors.*

III.

The Court erred in dismissing the complaint as to all three defendants.

IV.

The Court erred in not determining whether or not all three defendants were properly joined and sued, and in rendering no decision as to the liability as to two of the three defendants.

3857

V.

The Court erred in interpreting claim 23.

VI.

The Court erred in finding and holding that there was a difference between the patented method and the commercial method of complainant.

VII.

The Court erred in finding and holding that an egg cup is not included in the general term "dish".

3858

VIII.

The Court erred in finding and holding that a sliding latch needle is not the same or the equivalent of a pivoted latch needle in the method defined.

IX.

The Court erred in drawing a distinction between a loop sliding back over the end of a latch and beneath the latter, and a loop sliding back over a por-

tion of the latch and thence into a notch, although both function the same, namely; to respond to the pressure of the thread to move the latch.

X.

The Court erred in finding and holding that the defendants' latch does not close over the threads.

XI.

The Court erred in entirely missing the significance of the word "stretching", which is a continuing act as distinguished from "stretched", which may or may not be a continuing act and generally is a completed act which has taken place in the past. 3860

XII.

The Court erred in interpreting the Pogson method, the operation of which can only be guessed and is not as full, clear and exact a disclosure as is required, especially as to foreign patents.

XIII.

The Court erred in presuming some kind of a holder present in the Pogson patent while not according corresponding liberality as to the particular holder in his interpretation of claim 23 of the patent in suit. 3861

XIV.

The Court erred in his conclusion that the decisions in other courts "seemed to have taken the egg cup for granted".

3862 *Assignment of Errors.*

XV.

The Court erred in finding and holding that plaintiff's situation has been ventilated by the defendants in the instant case much more thoroughly than by any of the respective defendants in the previous suits based on claim 23.

XVI.

The Court erred in finding and holding that the defendants in the instant case had created an en-
3863 tirely new situation.

XVII.

The Court erred in finding and holding that "apparently the contention was never pressed in the previous cases that the egg cup, which is one of the most important elements in the plaintiff's method, was not properly disclosed in the plaintiff's patent".

XVIII.

The Court erred in finding and holding that the
3864 term "suitable holder" seems to leave the matter too much at large.

XIX.

The Court erred in finding and holding that the use of the egg cup for the stretching and manipulation of the fabric "were in a sense the result of the experience of trying to operate the patent in the vague and rudimentary form of its disclosure".

XX.

The Court erred in misconstruing Mr. Stephens' statement and evidence in effect that the selection of the egg-cup as the most acceptable type of holder was the result of considerable experiment *after* he applied for his patent instead of before he applied.

XXI.

The Court erred in ignoring and not taking into consideration the testimony of Losh that Stephens suggested the use of the egg-cup to him the latter part of April or the early part of May 1923 (page 314, original transcript), which was several months before the filing of the application for the original patent. 3866

XXII.

The Court erred in finding and holding that, both in the specification and in the claims, a more definite description of the appliance by which the Stephens' method and patent was worked should have been included and that it was his duty as applicant for a privilege to have included in his application —both in his specification and in his claim—a definite description of the appliance by which Stephens' method patent should be practiced. 3867

XXIII.

The Court erred in suggesting that there "is not any hint of the egg-cup even in the reissue patent," inasmuch as this was not only unnecessary, but moreover would have been objectionable as new matter.

3868 *Assignment of Errors.*

XXIV.

The Court erred in finding and holding that this failure of disclosure is a most obvious reason for dismissing this complaint.

XXV.

The Court erred in applying one test to the Stephens' patent and quite another to Pogson.

XXVI.

3869

The Court erred in finding and holding that it would only require a slight modification of the Ceska patent which "would be merely the result of a low form of mechanical intelligence", to be changed into the "suitable holder" of the Stephens' method claim.

XXVII.

The Court erred in finding and holding that the Ceska patent for darning was in a cognate art to the art of Stephens' patent.

3870

XXVIII.

The Court erred in finding and holding that claim 23 of the reissue patent was more limited than original claim 10.

XXIX.

That the Court erred in finding and holding that defendants' method is not the same as plaintiff's method, because defendants use a needle which is

3871

"a radical departure from the plaintiff's needle", and in finding and in holding that "the result reached is the same, but immaterial because it is not reached in the same way."

XXX.

The Court erred in refusing plaintiff's offering as an exhibit of an official printed copy of the Pogson British publication, thus leaving the record entirely deficient in this regard; and the Court further erred in accepting defendants' offer of a 3872
certified copy of a very recent edition (Second Edition) of the Pogson British publication, which differs at one vital point from the original publication, and the date of which second edition is many years subsequent to the Stephens' invention, and was not a publication prior to the Stephens' invention as evidenced by the date printed on the publication (Second Edition).

XXXI.

The Court erred in refusing plaintiff's offering of a certified copy of the Pogson U. S. abandoned application, which differs at one vital point from 3873
the early Pogson British publication.

XXXII.

The Court erred in giving undue importance to merely incidental mechanical elements in the claim in suit which primarily recites a method and only incidentally includes mechanical elements in carrying out that method.

3874 *Assignment of Errors.*

XXXIII.

The Court erred in finding and holding that plaintiff claimed the Vanitas method of the defendants is an infringement of plaintiff's *commercial process*, which process the Court holds is a much changed outgrowth of Stephens' patented process due to experience therewith subsequent to the granting of his patent. (Italics ours).

Dated at New York this 29th day of April, 1932.

3875

By
VERNON E. HODGES,
HENRY GILLIGAN,
Attorneys for Plaintiff.

DANIEL BURKE,
Solicitor for Plaintiff.

3876

Affidavit of Mailing Bond on Appeal. 3877

DISTRICT COURT OF THE UNITED STATES,

FOR THE SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED,
Plaintiff,

against

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation,
Defendants. 3878

STATE OF NEW YORK,
COUNTY OF NEW YORK, } ss.:

MARY CAREY, being duly sworn, deposes and says that she is employed by Daniel Burke, plaintiff's solicitor herein, who have their place of business in New York County. That on the 5th day of May, 1932, she served the within Bond on Appeal as follows: 3879

On Julian S. Wooster, Solicitor of Hosiery Motor-Mend Corporation and Kayser Hosiery Motor-Mend Corporation, Defendants, 233 Broadway, New York, N. Y.

On Hardy, Stancliffe & Hardy, Solicitors for Julius Kayser & Co., Defendant, 30 Church Street, New York, N. Y.

by depositing a true copy of the same securely enclosed in a post paid wrapper in a Post Office

3880 *Affidavit of Mailing Bond on Appeal.*

Box regularly maintained by the United States Government at 72 Wall Street, New York, N. Y., the said above addresses being the addresses within the state designated by them respectively for that purpose upon the preceding papers in this action, or the places where they then kept their respective offices.

Deponent is over the age of twenty-one years.

MARY CAREY.

3881 Sworn to before me this 6th day of May, 1932.

MARION GLADDING

MARION GLADDING
Notary Public, Residing in Kings Co.
Kings Co. Clk's No. 87, Reg. No. 4088
N. Y. Co. Clk's No. 158, Reg. No. 4-G-86
Queens Co. Clk's No. 351, Reg. No. 2099
My Commission expires March 30, 1934
(Seal)

3882

Bond on Appeal. 3883

O. T. #4131

DISTRICT COURT OF THE UNITED STATES OF AMERICA,

FOR THE SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED, Plaintiff,

against 3884

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, Defendants.

KNOW ALL MEN BY THESE PRESENTS:

That THE STELOS COMPANY, INCORPORATED as Principal, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation of the State of Maryland, duly authorized to transact business pursuant to the Act of Congress approved August 13th, 1894, and having an office and principal place of business for the State of New York, at No. 55 Liberty Street, New York City, as surety, are held and firmly bound unto the above named HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, in the sum of THIRTY-NINE HUNDRED ($3900.) Dollars to be paid to the said HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Cor- 3885

3886 *Bond on Appeal.*

poration for the payment of which well and truly to be made, said Principal and Surety bind themselves, their heirs, executors, administrators and assigns, jointly and severally, firmly by these presents. Sealed and dated the 2nd day of May, 1932.

WHEREAS, the above-named THE STELOS COMPANY, INCORPORATED has prosecuted this appeal to the United States Circuit Court of Appeals for the Second Circuit, to reverse the decree rendered in the above entitled suit, by a Judge of the District
3887 Court of the United States for the Southern District of New York.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, That, if the above named THE STELOS COMPANY, INCORPORATED shall prosecute this appeal to effect, and answer all damages and cost if it fail to make it good, then this obligation shall be void, otherwise the same shall be and remain in full force and virtue.

THE STELOS COMPANY, INCORPORATED
(Signed) By: HENRY GILLIGAN,
Attorney-in-Fact.

3888

FIDELITY AND DEPOSIT COMPANY OF MARYLAND
By F. MORRIS MILLER
Attorney-in-Fact.

Attest: GRACE SIBBINS
(Seal) Attorney-in-Fact.

Bond on Appeal.

3889

At a regular meeting of the Executive Committee of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, held in its office in the City of Baltimore, State of Maryland, on the 11th day of April, 1929, the following resolution was unanimously adopted:

"*Resolved,* That Wallace P. Harvey, John A. Griffin, Nathan Mobley, Robert J. Burns, Arthur H. Poole, William A. Bullock, F. Morris Miller, Frances A. Massey, M. A. Walsh, H. R. C. Hickey, Herbert J. McCooey, Louis C. Field, Clarence J. 3890
Collins, Charles M. Clark, Grace Sirrine, Anna Saeger, John E. M. Salley, Perry C. Symonds, Andrew G. Schneider, Frank A. Eickhoff, Thomas P. Cummings, Joseph P. Drake, Raymond C. Laib, Madeline H. Carey, William A. Cable, Harold W. Steuer, Joseph R. Franz, Caroline Johnson and Adele D. Klauser, all of the City of New York, State of New York, be and each of them is hereby appointed Attorney-in-Fact of this Company and empowered to execute and deliver and attach the seal of the Company to any and all bonds or undertakings for or on behalf of this Company and any and all reinsurance agreements covering bonds 3891
or undertakings. Such bonds or undertakings or reinsurance agreements to be executed for the Company by any one of the Attorneys-in-Fact aforesaid, and to be attested in every instance by one other of the said Attorneys-in-Fact, as occasion may require; it being understood, however, that one of the Attorneys-in-Fact signing shall be either said Wallace P. Harvey, John A. Griffin, Nathan Mobley, Robert J. Burns, Arthur H. Poole, William A. Bullock, F. Morris Miller, Frances A. Mas-

3892 sey, M. A. Walsh, William A. Cable, Joseph R. Franz, H. R. C. Hickey, Herbert J. McCooey, Louis C. Field or Clarence J. Collins."

On Back

COUNTY OF NEW YORK, ss.:

I, GRACE SIRRINE, Attorney-in-Fact of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, have compared the foregoing Resolution with the original thereof as recorded in the Minute Book of said Company, and do hereby certify that the same is a true and correct transcript therefrom and of the whole of said original Resolution.

3893

Given under my hand, and the seal of the Company, at the City of New York, this 2nd day of May, 1932.

GRACE SIRRINE
Attorney-in-Fact.

(Seal)

3894

Bond on Appeal. 3895

STATE OF NEW YORK, }
COUNTY OF NEW YORK, } ss.:

On this 2nd day of May in the year 1932, before me personally came F. MORRIS MILLER to me known, who, being by me duly sworn, did depose and say, that he resides in the City of New York; that he was the Attorney-in-Fact of the Fidelity and Deposit Company of Maryland, the corporation named in and which executed the within instrument; that he knew the seal of said corporation; that the seal affixed to said instrument was 3896
such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order. And the said F. Morris Miller further said that he was acquainted with Grace Sirrine and knew her to be the Attorney-in-Fact of said Company; that the signature of the said Grace Sirrine subscribed to the said instrument, is in the genuine handwriting of the said Grace Sirrine and was thereto subscribed by the like order of the said Board of Directors, in the presence of him, the said F. Morris Miller.

CHAS. E. McCARTHY 3897
(Seal) Notary Public.

Notary Public, N. Y. Co. No. 29, Reg. No. 3-Mc-57
Certificate filed Kings Co. No. 9, Reg. No. 3036
Bronx Co. 13Mc33, Reg. 5, Queens 181, Reg. 6348
Nassau, Richmond and Westchester Cos.
Term Expires March 30, 1933

3898 *Bond on Appeal.*

STATE OF N. Y. }
COUNTY OF N. Y. } ss.:

On this 2d day of May, 1932, before me personally appeared Henry Gilligan with whom I am personally acquainted, who, being by me duly sworn, did depose and say: That he resides at Washington, District of Columbia, that he is the Attorney in fact of The Stelos Company, Incorporated, the corporation described in and which executed the foregoing instrument; that he knows the corporate
3899 seal of the said corporation; that the seal thereto affixed is such corporate seal; that it was so affixed by order of the Board of Directors, and that he signed his name thereto by like order.

(Signed) GRACE E. MILLER
Notary Public,
County.

Stamped: N. P. Bronx Co.
N. Y. Co.
Com. expires March 30/1933

3900

Bond on Appeal. 3901

DISTRICT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED,
Plaintiff,

against

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, 3902
Defendants.

BOND ON APPEAL

Surety:

FIDELITY AND DEPOSIT COMPANY
OF MARYLAND

Metropolitan Department—55 Liberty Street—
Tel. 6200 Rector

3903

Brooklyn Branch—16 Court Street—
Tel. 3975 Triangle

I approve of the within Bond and of the sufficiency of the surety therein.

Dated 3rd May 1932

H. W. G.
U. S. D. J.

3904 **Citation.**

By the Honorable FRANK J. COLEMAN, one of the United States Judges for the Southern District of New York, in the Second Circuit.

To HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a corporation.

GREETING:

YOU ARE HEREBY CITED and admonished to be and
3905 appear before a United States Circuit Court of Appeals for the Second Circuit, to be holden at the Borough of Manhattan, in the City of New York, in the District and Circuit above named on the 28th day of May 1932, pursuant to an Appeal filed in the Clerk's Office of the District Court of the United States for the Southern District of New York, wherein The Stelos Company, Incorporated is appellant and you are respondents to show cause if any there be, why the decree in said appeal mentioned should not be corrected and why speedy justice should not be done to the parties in that behalf.

Given under my hand at the Borough of Manhattan, in the City of New York, in the District and
3906 Circuit above named, this 29 day April in the year of our Lord one thousand nine hundred and thirty-two and of the Independence of the United States the one hundred and fifty-sixth.

FRANK J. COLEMAN
United States District Judge for the Southern District of New York in the Second Circuit.

C. W.

Praecipe. 3907

DISTRICT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INC., Plaintiff, vs. HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, Defendants.	In Equity No. 48-16.

3908

TO THE CLERK OF THE DISTRICT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

You are hereby requested to certify the transcript of record to be filed in the United States Circuit Court of Appeals for the Second Circuit, pursuant to an appeal allowed to the plaintiff in the above-entitled cause, and to include in said transcript of record the following material, to wit:

3909

(1) Caption.

(2) Bill of Complaint.

(3) Answer.

(4) Amended Bill of Complaint.

(5) Answer of Kayser Hosiery Motor-Mend Corp.

3910 *Praecipe.*

(6) Answer of Julius Kayser & Company.

(7) Amendment to Answer of Hosiery Motor-Mend Corp.

(8) Amendment to Answer of Kayser Hosiery Motor-Mend Corp.

(9) Amendment to Answer of Julius Kayser & Co.

(10) Defendant's Notice under Section 4920
3911 R. S.

(11) Narrative statement of testimony of witnesses—

Depositions:

Edward E. Busek
J. C. Ruedt
May Delebeck
Mrs. Helen Luell
Mrs. Marjorie Converse
Emory J. Gearhart
Irvine F. Miller
3912 Roy G. Shaw

In Court:

Paula Gibson
Frank C. Stephens
Frank A. Losh
Aubrey C. Dickson
Raymond C. Storb
Frank A. Losh (recalled)
Noah A. Stancliffe
George J. Crosby

Praecipe. 3913

Mrs. Helen A. Harvey
Stanley W. Finch
Noah A. Stancliffe (recalled)
Aubrey C. Dickson (recalled)
Frank A. Losh (recalled)
Calvin H. Hartzell
Mrs. Jennie Rohrbach
Calvin H. Hartzell (recalled)
Anna Adamcik
Glenn Hitchcock
Sam Shanowitz
Aubrey C. Dickson (recalled) 3914
Anna Kolbe
Appendix

(12) Testimony of expert witnesses:

Charles McC. Chapman
Frank W. Dahn

(13) Plaintiff's Exhibits as follows:

Ex. No. 1—Certified abstract of title of patent in suit.
Ex. No. 2—Certified copy of Stephens Reissue Patent No. 16360, in suit.
Ex. No. 6—Record in Stelos vs. Stark suit. 3915
Ex. No. 7—Drawings of DeMarr application.
Ex. No. 8—Letter of introduction dated Dec. 14, 1922.
Ex. No. 9—Report to Mr. Stephens, dated Mar. 10, 1923.
Ex. No. 10—Data for DeMarr application.
Ex. No. 11—Original draft of DeMarr application.
Ex. No. 12—Office file wrapper of DeMarr application.

3916 *Præcipe.*

Ex. No. 13—Letter to Commissioner of Patents dated Mar. 10, 1923.

Ex. No. 14—Office file of Stephens application Ser. No. 664,720.

Ex. No. 15—Sheet of sketches.

Ex. No. 16—Two sheets with pasters in typewriting.

Ex. No. 17—Sheet of pencil notes by Mr. Losh.

Ex. No. 18—Search Memorandum.

Ex. No. 19—Office file wrapper of Stephens application, Ser. No. 664,720, filed Sept. 25, 1923.

3917

Ex. No. 21—List of claims "Revised for reissue."

Ex. No. 22—Copy of claims 20, 21 and 22, marked "N. G."

Ex. No. 23—Draft of claims a-g (6-12) for reissue.

Ex. No. 24—Two sheets of sketches, dated 5/18/26, and signed J. P. S.

Ex. No. 25—Office file wrapper of Stephens reissue application.

Ex. No. 26—Certified copy of assignments from Hosiery Motor Mend Corporation to Kayser Hosiery Motor-Mend Corporation.

3918

Ex. No. 27—Certified list of stockholders of Kayser Hosiery Motor-Mend Corporation as of Oct. 31, 1929.

Ex. No. 28—Certified list of stockholders of Kayser Hosiery Motor-Mend Corporation as of Mar. 19, 1931.

Ex. No. 31—Letter to Horne & Co. from Kayser Hosiery Motor-Mend Corporation.

Ex. No. 33—Certified copy of file wrapper and contents of the original Stephens Patent No. 1,564,379.

Praecipe. 3919

Ex. No. 34—Certified copy of file wrapper and contents of the reissue Stephens Patent No. 16,360.

Ex. No. 35—Advertisement in "The Textile World" of Oct 29, 1927, of final decree in Stark suit.

Ex. No. 36—Certified copy of Ortega Canadian Patent No. 225,612, dated Nov. 7, 1922.

Ex. No. 37—Copy of Van Dyke Patent No. 1,745,462, dated Feb. 4, 1930.

Ex. No. 40—Gearhart Circular.

Ex. No. 41—Copies of patents to Armour No. 52,256, to Salisbury No. 189,501, and to Van Dyke No. 1,745,462. 3920

Ex. No. 43—Instruction Book of Gearhart Knitting Machine Company 1926-1927 (Copyrighted 1923).

Ex. No. 44—Knitting manual of instructions and sales of the Clearfield Knitting Machine Company (Copyrighted 1927).

Ex. No. 46—Copy of Howe patent No. 1,620,550.

(14) Plaintiff's exhibits offered but excluded by Trial Court: 3921

Ex. No. 30—Group of advertisements of Vanitas System.

Ex. No. 45—Printed copy of Pogson British patent No. 168,817 (first edition).

Ex. No. —Certified copy of Pogson abandoned U. S. application, Ser. No. 524,226, filed Dec. 22, 1921.

(15) Defendant's Exhibits as follows:

Ex. No. A-1, page 164 of March 1930 issue of the Underwear and Hosiery Review.

Ex. No. A-9, page 40, the Textile World of Apr. 12, 1930.

Ex. No. A-19, Photostats of Gearhart knitter advertising.

Ex. No. A-20, Photostat of letter, dated Apr. 11, 1916, to J. E. Gearhart Company.

Ex. No. A-21, Photostats of samples of Gearhart machine orders.

Ex. No. A-22, Photostats of two pages from Branson book.

Ex. No. A-24, Photostats of pages from Cardon and Gearhart instruction book.

3923

Ex. No. A-25, Photostats of pages from J. E. Gearhart instruction book "Instructions for Using the Peoples' H. S. Knitting Machine".

Ex. No. A-26, Photostats of pages from J. E. Gearhart instruction book "Instructions for Using Gearhart's improved family knitting-machine".

Ex. No. A-27, Photostats of pages from J. E. Gearhart & Sons instruction book "Instructions for Using Gearhart's improved family knitting machine".

Ex. No. A-28, Photostats of pages from Gearhart Knitting Machine Co. "Instructions for operating Gearhart's Family Knitting Machine"; Photostats of pages from "Instruktioner for Skotandet af Gearhart's Familje Stickmaskin" (Swedish) with certified translation.

3924

Photostats of pages from Gearhart Knitting machine Co. "Instruktioner for Brugen af Gearhart's Familie Strikke Naskine" (Norwegian) with certified translation.

Photostats of pages from Gearhart Knitting Machine Co. "Anweisung fur den Betrieb von

Gearhart's Familien-Strickmaschine" (German) with certified translation.

Ex. No. A-29, Photostats of pages from Gearhart Knitting Machine Co. "Instrukcya O Poslugiwaniu Sie Gearhart's Domowa Maszyna Ponczosznicza, with certified translation.

Ex. No. A-30, Photostats of pages from Auto-Khitter Hosiery Co. "Instructions for Operating The Celebrated Auto-Knitter B".

Ex. No. A-31, Photostats of pages from Gearhart Knitting Machine Co. Inc. "Instructions for Operating Gearhart's Knitting Machine Special Work and Family Outfit and all Standard Machines", October 1920. 3926

Photostats of pages from Gearhart Knitting Machine Co. "Instructions for Operating Gearhart's Knitting Machine Special Work and Family Outfit and all Standard Machines", March 1921.

Ex. No. A-32, Photostats of pages from Gearhart Knitting Machine Co. "Instructions for Operating Gearhart's Knitting Machine Special Work and Family Outfit and all Standard Machines", Nov. 1, 1921. 3927

Ex. No. A-33, Photostats of printed leaflet of Gearhart Knitting Co. 1924, "Picking Up a Dropped Cylinder Stitch While Knitting is on the Machine".

Ex. No. A-34, Photostat of print of Gearhart machine "Assembly of Machine".

Ex. No. A-35, Photostats of pages from "The Auto Knitter Instruction Book" 16th Ed.

Ex. No. A-36, Photostat of letter dated Dec. 7, 1929 Harold Olson to E. J. Gearhart.

3928 *Praecipe.*

Ex. No. A-37, Photostats of pages from Weiner Instruction book "Instructions for Operating the Gearhart Sock Knitting Machine".

Ex. No. F-44, Stelos advertising card and reprint from Nov. 2, 1928 issue of Women's Wear Daily.

Ex. No. G-45, Flawless Mend Circular.

Ex. No. H-46, Printed copy of decision in Stelos Co. vs. Finch Corporation Supreme Court of D. C.

Ex. No. I-47, Printed copies of United States and foreign patents:

3929

United States

Hilbert	6,025	Jan. 9, 1849
Carey	47,488	Apr. 25, 1865
Fifield	51,577	Dec. 19, 1865
Miller	71,039	Nov. 19, 1867
Arnold	93,394	Aug. 10, 1869
Shedlock	113,213	Mar. 28, 1871
Babbitt	117,501	Aug. 1, 1871
Harley	156,702	Nov. 10, 1874
Salisbury	189,500	Apr. 10, 1877
Salisbury	189,501	Apr. 10, 1877
3930 Salisbury	189,502	Apr. 10, 1877
Stewart	312,923	Feb. 24, 1885
Goodman	400,330	Mar. 26, 1889
Egly	473,697	Apr. 26, 1892
Reuther	726,758	Apr. 28, 1903
Woodward	757,378	Apr. 12, 1904
Mack	914,664	Mar. 9, 1909
Graf	916,926	Mar. 30, 1909
Egly	956,318	Apr. 26, 1910
Billington	1,314,565	Sept. 2, 1919
Ceska	1,337,884	Apr. 20, 1920
Fenn	1,364,088	Jan. 4, 1921

Praecipe.

3931

Wilcomb	1,391,033	Sept. 20, 1921
Wilcomb	1,398,821	Nov. 29, 1921
Post	1,401,728	Dec. 27, 1921
Taft	1,461,007	July 3, 1923
Wilcomb	1,498,706	June 24, 1924
Semonsen	1,536,274	May 5, 1925
Semonsen	1,536,275	May 5, 1925

Foreign Patents

British	Patent	No. 24311,	of 1893
"	"	" 19115,	of 1903
"	"	" 24464,	of 1914
"	"	" 168817,	of 1921
"	"	" 180730,	of 1922
German	"	" 35795,	of 1886*
"	"	" 60605,	of 1892*
"	"	" 125108,	of 1901*
"	"	" 359064,	of 1922*
"	"	" 361782,	of 1922*
Swiss	"	" 77909,	of 1918*
Austrian	"	" 424,	of 1899*
French	"	" 538595,	of 1922*

3932

* With translation.

Publication

3933

Technologie der Wijkerie, English Edition, Taf. 24, and pages 351 to 359.

Ex. No. J-48, Certified page showing receipt of Pogson's British Patent No. 168,817 in U. S. Patent Office.

Ex. No. J-48A, Certified copy of page showing date of sale of Pogson British patent in British Patent Office.

Ex. No. J-48B, Provisional specification Pogson British patent No. 168,817.

3934 *Praecipe.*

Ex. No. K-49, Certified copies with certified translations of foreign patents:

British	180,730,	Ortega
French	538,595,	Ortega
German	35,795,	Foucar
"	106,861,	Hartig
"	125,108,	Schulte, et al.
"	359,064,	Kleemann
"	361,782,	Kleemann
Swiss	77,909,	Doring, et al.

3935 Ex. No. L-50, Certified photostat of decision of Comptroller-General, dated March 24, 1924, re Ortega opposition.

Ex. No. M-51, Certified file wrapper and contents Van Dyke patent No. 1745462.

Ex. No. N-52, Certified file wrapper and contents Finch patent No. 1674508.

Ex. No. O-53, Certified copy abandoned application of G. H. Slack, Ser. No. 540,630.

Ex. No. P-54, Certified copy of Interference No. 48363, Pogson vs. Slack vs. Ortega.

Ex. No. Q-55, Certified copy Slack sealed affidavit under Rule 75.

3936 Ex. No. R-56, Certified copy abandoned trademark application "Run Repairer" Ser. No. 160085.

Ex. No. S-57, Certificate No. 2748, County Clerk—New York County—certificate of doing business of George H. Slack.

Ex. No. V-60, Hartzell memorandum book, five last pages.

Ex. No. W-61, Certified letter from President of Kraemer Co. re employment of Mrs. Rohrbach.

Ex. No. C-C, Letter by Treasurer of Thermo Mills re employment of Mr. Hitchcock.

Ex. No. D-D, Photograph of Tompkins machine.

Ex. No. H-H, Shanowitz's envelope containing printed instructions.

Ex. No. I-I, Certified copy of copyright of instructions for using Gearhart's improved Family Knitting Machine.

Ex. No. J-J, Certified copy Canadian copyright, Auto-Knitter, 2-24-23.

Ex. No. K-K, Canadian copyright and assignment to Auto-Knitter, 12-13-15. 3938

Ex. No. L-L, U. S. Copyright, Auto-Knitter, 12th Edition.

Ex. No. M-M, Auto-Knitter instruction book, 12th Edition.

Ex. No. Q-Q, Photostats of text book—Technology of Framework Knitting—pages 351-360, and Figs. 503-550.

Ex. No. R-R, Certified copy of file wrapper and contents of abandoned DeMarr U. S. application.

Ex. No. S-S, Certified copy of Pogson publication certified by British Patent Office.

Ex. No. T-T, Copy of patent to Dunn et al No. 1,793,225, Feb. 17, 1931. 3939

Ex. No. U-U, Copy of DeMarr Mexican patent No. 21,529, with translation.

Ex. No. V-V, Certified copy of application as filed of Semonsen patent No. 1,536,274.

Ex. No. W-W, Certified copy of application as filed of Semonsen Patent No. 1, 536,275.

Ex. No. X-X, Copy of Stephens abandoned application Ser. No. 177,462, filed March 22, 1927.

3940 *Praecipe.*

Ex. No. Y-Y, Certified copy of file wrapper and contents of interference No. 55,151, Stephens vs. Howe.

Ex. No. Z-Z, Certified copies of file wrappers of abandoned applications of Pogson, Ser. No. 524,226, Slack Ser. No. 540,630, and Ortega Ser. No. 482,667.

Ex. No. A-A-A, Copy of Jones patent No. 386,636, July 24, 1888.

Ex. No. B-B-B, Copy of German patent to Hartig No. 106,861, Dec. 19, 1899, with translation.

3941

(16) Stipulation regarding records of previous Stelos suits.

(17) Opinion of the District Court.

(18) Order re Findings of Fact and Conclusions of Law.

(19) Final Decree.

(20) Assignment of Errors.

3942 (21) Petition for appeal.

(22) Order allowing appeal with Supersedeas.

(23) Stipulations for extension of time to file narrative statement of evidence.

(24) Citation.

(25) Appeal Bond.

(26) Certificate of Clerk of U. S. District Court.

Praecipe.

3943

All other Exhibits received in evidence on behalf of either party are to be taken as physical exhibits and withdrawn from the files of this Court, to be produced at the argument of the appeal herein, and meanwhile be kept in custody of counsel for the party offering same, and be subject to inspection by opposing party during business hours.

V. E. HODGES,
Counsel for The Stelos Company, Inc.

Service is hereby acknowledged this 29 day of November, 1933, of the foregoing Praecipe.

3944

J. S. WOOSTER,
Counsel for Hosiery Motor-Mend Corp. and Kayser Hosiery Motor-Mend Corp.

HARDY, STANCLIFFE & HARDY,
Counsel for Julius Kayser & Co.

3945

3946 **Stipulation and Order as to Contents of Record.**

IN THE

UNITED STATES CIRCUIT COURT OF APPEALS,

SECOND CIRCUIT.

THE STELOS COMPANY, INC.,
Plaintiff,

vs.

3947

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation,
Defendants.

In Equity No. 48-16.

It is hereby stipulated and agreed by and between counsel for the parties to the above-entitled cause, subject to the approval of the Court, in order to avoid as far as possible duplication or the inclusion of unnecessary matter in the printed record, that the printed record shall include only the following

3948 paper exhibits or portions thereof:

Plaintiff's Exhibits as follows:

Ex. No. 2—Copy of Stephens Reissue Patent No. 16360. (Omit certificate).

Ex. No. 26—Certified copy of assignments from Hosiery Motor Mend Corporation to Kayser Hosiery Motor Mend Corporation.

Ex. No. 27—Certified list of stockholders of Kayser Hosiery Motor Mend Corporation as of October 31, 1929.

Stipulation and Order as to Contents of Record. 3949

Ex. No. 28—Certified list of stockholders of Kayser Motor Mend Corporation as of March 19, 1931.

Ex. No. 31—Letter to Horne & Co. from Kayser Hosiery Motor Mend Corporation.

Ex. No. 40—Gearhart Circular (pages 1 and 6 only).

Ex. No. 41—Copies of patents to Armour No. 52,256, to Salisbury No. 189,501, and to Van Dyke No. 1745462.

Ex. No. 43—Instruction Book of Gearhart Knitting Machine Company 1926-1927 (first page inside of cover and page 21 only). 3950

Ex. No. 44—Knitting manual of instructions and sales of the Clearfield Knitting Machine Company (Copyrighted 1927), first page inside of cover, and page 10 only).

Defendant's Exhibits as follows:

Ex. No. A-1, page 164 of March 1930 issue of the Underwear and Hosiery Review.

Ex. No. A-9, page 40, the Textile World of April 12, 1930.

Ex. No. A-19, "Comfort" Sept. 1895 (page 9). "Women's Home Companion" Oct. 1897 page 28). "McCall's" Dec. 1923 (page 91). "Women's Home Companion" Dec. 1923 (page 123). 3951

Ex. No. A-30, Photostats of pages from Auto-Knitter Hosiery Co. "Instructions for Operating The Celebrated Auto-Knitter Model B (2 pieces).

Ex. No. A-31, Gearhart Knitting Machine Co. Inc. "Instructions for Operating Gearhart's

3952 *Stipulation and Order as to Contents of Record.*

Knitting Machine", etc., Oct. 1920 (cover page and pages 10 and 16 only).

Gearhart Knitting Machine Co. Inc. "Instructions for Operating Gearhart's Knitting Machine", etc., March 1921 (cover page and pages 10 and 16 only).

Ex. No. A-35, Photostats of pages from Auto-Knitter Instruction Book 16th Ed. "The Auto Knitter Instruction Book" (4 sheets).

Ex. No. A-37, Weiner Instruction Book "Instructions for Operating the Gearhart Sock

3953 Knitting Machine" (cover page, front and back of first inside sheet, and page 20, only).

Ex. No. 1-47, Copies of United States and foreign patents:

United States

Hilbert	6,025	Jan. 9, 1849
Carey	47,488	Apr. 25, 1885
Fifield	51,577	Dec. 19, 1865
Arnold	93,394	Aug. 10, 1869
Shedlock	113,213	Mar. 28, 1871
Harley	156,702	Nov. 10, 1874
Salisbury	189,501	Apr. 10, 1877
3954 Stewart	312,923	Feb. 24, 1885
Reuther	726,758	Apr. 28, 1903
Woodward	757,378	Apr. 12, 1904
Mack	914,664	Mar. 9, 1909
Graf	916,926	Mar. 30, 1909
Billington	1,314,565	Sept. 2, 1919
Ceska	1,337,884	Apr. 20, 1920
Taft	1,461,007	July 3, 1923
Semonsen	1,536,274	May 5, 1925
Semonsen	1,536,275	May 5, 1925

Stipulation and Order as to Contents of Record. 3955

Foreign

British Patent No. 24311, of 1893
" " " 19115, of 1903
" " " 168817, of 1921
" " " 180730, of 1922
German " " 35795, (drawings and translations only).
" " " 125108 (drawings and translations only).
" " " 359064 (drawings and translations only).
" " " 361782 (drawings and translations only). 3956
Swiss " " 77909, of 1918 (drawings and translations only).

Ex. No. J-48-B, Provisional and complete specification and drawing of Pogson British patent No. 168,817.

Ex. No. K-49, French Patent No. 538,595, Ortega (drawings and translation only).

Ex. No. L-50, Decision of Comptroller-General, dated March 24, 1924, re Ortega opposition.

Ex. No. V-60, Hartzell memorandum book (five last pages only). 3957

Ex. No. W-61, Certified letter from President of Kraemer Co., re employment of Mrs. Rohrback.

Ex. No. C-C, Letter by Treasurer of Thermo Mills re employment of Mr. Hitchcock.

Ex. No. D-D, Photograph of Tompkins machine.

Ex. No. H-H, Shanowitz's envelope containing printed instructions.

Ex. No. I-I, Certified copy of copyright of Instructions for Using Gearhart's Family Knittting Machine.

Ex. No. J-J, Certified copy of Canadian copyright Auto Knitter 2/24/23.

Ex. No. K-K, Canadian copyright and assignment of Auto Knitter, 4/13/15.

Ex. No. L-L, U. S. copyright Auto Knitter, 12th Edition.

Ex. No. M-M. Auto Knitter Instruction Book, 12th Edition, (pages 9, 20 and 32).

3959

Ex. No. Q-Q, Technology of Framework Knitting (pages 351-360 and sheet containing Figs 503-550).

Ex. No. R-R, File wrapper and contents of abandoned DeMarr U. S. application.

Ex. No. S-S, Certified copy of Pogson British Patent No. 168,817 (second Edition).

Ex. No. T-T, Copy of patent to Dunn et al, No. 1,793,225, Feb. 17, 1931.

Ex. No. U-U, Copy of DeMarr Mexican patent No. 21,529 (drawings and translation only).

Ex. No. X-X, Copy of Stephens abandoned application, Ser. No. 177,462, filed March 22, 1927.

3960

Ex. No. Y-Y, File wrapper and contents of Interference No. 55,151, Stephens v. Howe.

Ex. No. A-A-A, Copy of Jones patent No. 386,636, July 24, 1888.

Ex. No. B-B-B, Copy of German patent to Hartig No. 106,861, Dec. 19, 1899 (drawings and translation only).

Stipulation and Order as to Contents of Record. 3961

APPENDIX

Plaintiff's Exhibits Offered but Excluded by Trial Court.

Ex. No. 30, Advertisements of Vanitas System:
No. 1, "Women's Wear Daily", June 7, 1929, (page 9).
No. 10, "Women's Wear Daily", Feb. 25, 1929, (page 33).
No. 12, "Making Money in Hosiery Repair" (front cover and page 3).
No. 13, Kayser Hosiery Motor Mend Ad (page 6). 3962
Orange color circular, only open page headed "Vanitas is Speedy in Results", including photograph at bottom of page.
Ex. No. , Copy Pogson abandoned U. S. application, Ser. No. 524,226, filed Dec. 22, 1921.

This Stipulation and Order as to Contents of Record shall be included in the printed record.

It is also stipulated and agreed that the several stipulations extending the time for filing the narrative statement of evidence need not be printed in 3963 the printed record.

It is further stipulated and agreed that all other exhibits received in evidence on behalf of either party and the portions of the exhibits not printed as designated above, are to be taken as physical exhibits and withdrawn from the files of this Court to be produced at the argument of the appeal herein, and meanwhile to be kept in custody of counsel for the party offering same, and to be subject to inspection by opposing party during business hours.

3964 *Stipulation and Order as to Contents of Record.*

It is further stipulated and agreed that in lieu of printing or otherwise reproducing the copies of United States patents offered in evidence in plaintiff's exhibits, No. 2, No. 37, and No. 41, and in defendants' exhibits, I-47, T-T, and A-A-A, printed copies of such patents as furnished by the United States Patent Office may be used and bound into fourteen copies of the record to be filed in Court, in addition to the copies to be served on defendants pursuant to Rule 21, and the other printed copies of the record need not contain copies of such
3965 United States patents.

It is further stipulated and agreed that the Pogson United States application, Ser. No. 524,226, was filed in the United States Patent Office on December 22, 1921, that Slack application, Ser. No. 540,630, was filed in the United States Patent Office on March 2, 1922; that Ortega application, Ser. No. 482,667, was filed in the United States Patent Office on July 6, 1921, that the applications for Semonsen patents, No. 1,536,274 and No. 1,536,275, were filed in the United States Patent Office, June 27, 1923.

3966 It is further stipulated and agreed that the printed copy of Pogson British patent No. 168,817, as contained in the bound volume of the United States Patent Office Library and which was exhibited to the trial court by Conway P. Coe, was received in the United States Patent Office on November 16, 1921, and that the Pogson British patent No. 168,817, as contained in the bound volume of British patents in the United States Patent Office and as exhibited in said bound volume

to the trial court was placed on sale in the British Office on October 6, 1921.

V. E. HODGES,
Counsel for The Stelos Company, Inc.

Washington, D. C.,
November 28, 1933.

J. S. WOOSTER,
Counsel for Hosiery Motor-Mend Corp.
and Kayser Hosiery Motor-Mend Corp. 3968

New York City, N. Y.,
November 29, 1933.

HARDY, STANCLIFFE & HARDY,
Counsel for Julius Kayser & Co.

New York City, N. Y.,
November 29, 1933.

The foregoing stipulation is hereby approved.

FRANCIS G. CAFFEY,
U. S. Circuit Judge. 3969

December 1, 1933.

3970

Stipulation as to Record.

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE STELOS COMPANY, INCORPORATED,
Plaintiff,

v.

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation,
Defendants.

3971

It is hereby stipulated and agreed, that the foregoing (in 3 volumes) is a true transcript of the record of the said District Court in the above-entitled matter as agreed on by the parties.

Dated, March , 1934.

VERNON E. HODGES,
Attorney for Plaintiff.

3972

JULIAN S. WOOSTER,
Attorney for Hosiery Motor-Mend Corporation and Kayser Hosiery Motor-Mend Corporation.

HARDY, STANCLIFFE & HARDY,
Attorneys for Julius Kayser & Company.

Clerk's Certificate.

UNITED STATES OF AMERICA,
SOUTHERN DISTRICT OF NEW YORK, } ss.:

THE STELOS COMPANY, INCORPORATED,
Plaintiff,

v.

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY Corporation,
Defendants.

I, CHARLES WEISER, Clerk of the District Court of the United States of America for the Southern District of New York, do hereby Certify that the foregoing (in 3 volumes) is a correct transcript of the record of the said District Court in the above-entitled matter as agreed on by the parties.

In testimony whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, this day of March, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the said United States the one hundred and fifty-eighth.

CHARLES WEISER,
Clerk.

(Seal)

KAYSER ACTS •

KAYSER HOSIERY MOTOR-MEND CORP., a separate Organization but a direct subsidiary of Julius Kayser & Co., has acquired the business and rights of the Hosiery Motor-Mend Corp., owners of the Vanitas* System of hosiery repair.

We believe that in the acquisition of the Vanitas method, we have acquired the most practical, flexible, most easily taught and least expensive method of hosiery repair.

The Vanitas system is in successful and profitable operation in a number of the most important departmental stores in the country. It is beyond the experimental stage; it is an accomplished fact.

We are quickly organizing an efficient distribution and installation system and will be pleased to receive your inquiry regarding this most important development.

*Vanitas is a trade mark distinguishing the exclusive, speedy, simple, and efficient method of hosiery repair, owned by Kayser Hosiery Motor-Mend Corp. and leased by them to leading retail stores.

KAYSER HOSIERY
MOTOR-MEND CORP.
40 EAST 34th STREET, NEW YORK CITY

ECONOMY AND SIMPLICITY

developed to the maximum degree in the

VANITAS

System of

HOSIERY REPAIR

These and other equally important reasons have led many prominent department stores, exclusive hosiery shops and leading hosiery mills to adopt the Vanitas System in preference to all other methods of hosiery repair.

ECONOMY

The VANITAS machine does not require any elaborate preparation of floor space, lighting facilities or special power connections. Place a table or desk near the window, plug into any ordinary electric light socket, and the VANITAS machine is in operation at once. Our entire organization is then at your service to help you further increase the speed of your operators and to permit your handling all types of hosiery repair jobs in a highly efficient manner. VANITAS *is the most economical system of hosiery repair.*

● **Exceedingly Low Monthly Rental**
No Royalties or Price Restrictions

The VANITAS System of Hosiery Repair protects your profits. Our low monthly rental charge is quickly absorbed as your hosiery repair business increases and as your operators become thoroughly skilled in this exceedingly simple hosiery repair system. No royalties or price restrictions to eat into your profits.

Rapidly increasing number of installations being made every day. Mail coupon today. Keep pace with the leaders.

SIMPLICITY

The entire operation of the VANITAS machine is right at your finger tips. The needle itself is controlled by the pressure of your fingers on the needle holder. Release your finger pressure and the needle immediately operates at top speed. Slight pressure of the operator's finger and the needle stops instantaneously. This split second control is essential if your Hosiery Repair Department is to operate at maximum speed and efficiency.

Sheerness or weight of the stocking determines the amount of tension that should be placed on the fabric. This tension is controlled by the left hand of the operator with the stocking spread over the light aluminum cup. Again the operation is at your finger tips. No contact with heavy fixed mechanical parts. No mechanical adjustments to make for the various weights of hose or for the constant variety of repair jobs.

VANITAS hosiery repair, *the easiest, simplest system.*

Immediate installation; services of skilled instructors and complete training schools will help you establish this new department.

W.W.D. 1929

Hosiery Motor-Mend Corporation
The *VANITAS* System
40 East 34th St., New York, N. Y.

We want the full story at once on The *VANITAS* System.

Name_____

Address_____

HOSIERY MOTOR-MEND CORPORATION

THE *VANITAS* SYSTEM

40 East 34th St. New York, N. Y.

Offices and training schools:

New York City, 40 East 34th Street, phone Col. 6283 · Philadelphia, Pa., 1011 Chestnut St., phone Walnut 1580 · Kansas City, Mo., Live Stock Exchange Bldg. · Toronto, Ont., 610 Kent Bldg. · Cleveland, Ohio, 611 Hippodrome Bldg., phone Cherry 6319

MAKING MONEY IN HOSIERY REPAIR

George Hosiery

IMPORTANT FACTS to consider before you install your Hosiery Repair System.

Points of superiority of The Vanitas System as proved in actual operation.

Fastest, most flexible, most adaptable, most reasonable to install, most profitable to operate.

HOSIERY MOTOR-MEND CORPORATION

VANITAS

System of Hosiery Repair

The four essential units of the *VANITAS* system:

1 MOTOR
Light, portable and clean.

2 NEEDLE
As light and easy to guide as an automatic pencil.

3 CUP
Aluminum, very light, shaped to fit the hand.

4 FOOT CONTROL STARTER
(Not illustrated)

In ten months *VANITAS hosiery repair makes great strides

Large stores . . . small stores . . . specialty shops . . . exclusive hosiery shops . . . from coast to coast . . . have installed Vanitas hosiery repair departments during 1929. Even within these few months they report successful and profitable operations, Vanitas machines functioning perfectly, everything going smoothly, business increasing every day.

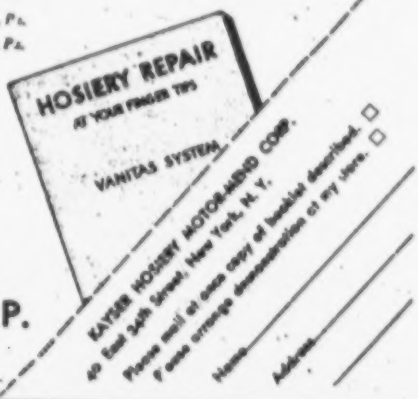
Among enthusiastic VANITAS users are

LOVEMAN, JOSEPH AND LOEB	*Birmingham, Ala.*
NACHMAN & MEERTIEF	*Montgomery, Ala.*
THE POPULAR SHOP	*Sacramento, Calif.*
JOSEPH MAGNIN CO.	*San Francisco, Calif.*
ROCKWELL & CO.	*Bridgeport, Conn.*
JULIUS GARFINKEL	*Washington, D. C.*
WOODWARD & LOTHROP	*Washington, D. C.*
KOHN FURCHGOTT	*Jacksonville, Fla.*
CHAMBERLIN-JOHNSON-DuBOSE	*Atlanta, Ga.*
W. T. GRANT	*Atlanta, Ga.*
CARSON PIRIE SCOTT & CO.	*Chicago, Ill.*
UNITED HOSIERY SHOP	*Chicago, Ill.*
G. W. MARKS & SON	*Galesburg, Ill.*
P. A. BERGNER & CO.	*Peoria, Ill.*
SCHAEFF'S	*Davenport, Iowa*
YOUNKER BROTHERS	*Des Moines, Iowa*
ECKLES	*Dodge City, Iowa*
HOOPER'S	*Coffeyville, Kan.*
D. H. HOLMES CO., LTD.	*New Orleans, La.*
KRAUSS CO., LTD.	*New Orleans, La.*
THE BAIRD CO.	*Shreveport, La.*
HOCHSCHILD, KOHN & CO.	*Baltimore, Md.*
LETTER BROS.	*Hagerstown, Md.*
GROSS STRAUSS CO.	*Worcester, Mass.*
ERNST KERN CO.	*Detroit, Mich.*
L. S. DONALDSON CO.	*Minneapolis, Minn.*
R. E. KENNINGTON CO.	*Jackson, Miss.*
PARIS DRY GOODS CO.	*Great Falls, Mont.*
J. L. BRANDEIS	*Omaha, Neb.*
TEPPER BROS.	*Plainfield, N. J.*
VAN ROON SALES CORP.	*Brooklyn, N. Y.*
ABRAHAMSON-BIGELOW CO.	*Jamestown, N. Y.*
FRANKLIN SIMON CO.	*New York City, N. Y.*
OPPENHEIM, COLLINS & CO.	*New York City, N. Y.*
LUCKEY PLATT	*Poughkeepsie, N. Y.*
THE MALLEY CO.	*Rochester, N. Y.*
DEY BROTHERS	*Syracuse, N. Y.*
THE BLACK CO.	*Fargo, N. Dak.*
AKRON DRY GOODS	*Akron, Ohio*
THE ROLLMAN & SONS CO.	*Cincinnati, Ohio*
THE JOHN SHILLITO CO.	*Cincinnati, Ohio*
THE DUNN, TAFT CO.	*Columbus, Ohio*
THE MOREHOUSE MARTENS CO.	*Columbus, Ohio*
THE UNION CO.	*Columbus, Ohio*
THE ELDER & JOHNSTON CO.	*Dayton, Ohio*
LASALLE & KOCH CO.	*Toledo, Ohio*
CHAS. F. BERG	*Portland, Ore.*
LIPMAN, WOLFE & CO.	*Portland, Ore.*
THE F. HEINZ CO.	*Allentown, Pa.*
PENN TRAFFIC CO.	*Johnstown, Pa.*
KAUFMANN DEPT. STORES, INC.	*Pittsburgh, Pa.*
BRY BLOCK MERC. CO.	*Memphis, Tenn.*
SCHERMERHORN CO.	*Fort Worth, Texas*
KEITH O'BRIEN, INC.	*Salt Lake City, Utah*
ZION COOPERATIVE MERC. INST.	*Salt Lake City, Utah*
D. MOSES & CO., INC.	*Lynchburg, Va.*
MILLER & RHOADS, INC.	*Richmond, Va.*
GEO. MacBAIN CO., INC.	*Roanoke, Va.*
THE BON MARCHE	*Seattle, Wash.*
THE RHODES DEPT. STORE	*Seattle, Wash.*
SPOKANE DRY GOODS CO.	*Spokane, Wash.*
DEARDORFF-SISLER CO.	*Huntington, W. Va.*
T. EATON & CO.	*Toronto, Canada*
JOHN COURT LTD.	*Auckland, New Zealand*

SPONSORED BY KAYSER

WE SUGGEST

1. Investigate personally at some of these stores.
2. Mail coupon for illustrated booklet.
3. See demonstration at one of our offices or in your own store.



* VANITAS is a trademark distinguishing the exclusive and efficient method of hosiery repair, owned by Kayser Hosiery Motor-Mend Corp. and leased by them to leading retail stores. Vanitas is fully covered by United States and foreign patents, issued and pending.

BRANCH OFFICES:

BOSTON . . . . . 14 West Street
CHICAGO . . . 36 South State Street
LOS ANGELES . . . . Quimby Bldg.
SAN FRANCISCO . 560 Mission Street

KAYSER HOSIERY MOTOR-MEND CORP.

40 East 34th Street, New York

VANITAS IS SPEEDY IN RESULTS

Vanitas machines have no complicated mechanical parts to get out of order. The needle reknits the runs in all gauges of hose. No necessity for grading or arranging stockings which saves time.

The stocking to be repaired is spread over a small holder and held freely in the left hand. Absolute control in operating the machine is obtained by foot pedal and finger control on needle handle which is as easy as handling a pen or pencil.

The average girl can be taught to operate the Vanitas machine perfectly in two weeks. No supervision is then necessary.

Vanitas makes each repair quickly. It requires less time than any other system to repair a run from toe to garter top.

The amount of daily production is limited only to the ability of the operator.

Millions of stockings are being flawlessly restored by Vanitas machines already in use.

VANITAS IS ECONOMICAL IN OPERATION

Vanitas requires little floor space—needs no special electric connections (just plug in an ordinary base outlet or light socket). Current consumption is small and equivalent to an electric light. Upkeep costs practically nil.

Vanitas automatically reknits runs faultlessly in all grades of silk hosiery without the use of additional thread. Thus the necessity of spending time and money in matching delicate colors is eliminated.

Vanitas machines are leased outright. No per job charge, no royalties on the amount of work turned out. Low monthly rental quickly absorbed.

VANITAS IS MOST PROFITABLE

Vanitas pays profits by performing the maximum number of complete perfect repair jobs per operator, per hour and per dollar expenditure.

A FEW OF THE MANY SATISFIED MILLS AND RETAIL STORES USING VANITAS

Carson Pirie Scott	Chicago
Gimbels	New York, Philadelphia, Milwaukee
Kaufman's Dept. Store	Pittsburgh
D. H. Holmes	New Orleans
Eaton Co.	Canada
Franklin Simon	New York
R. H. Stearns	Boston
Bon Marche	Seattle
Z. M. I. C.	Salt Lake City
Ernst Kern	Detroit
Berkshire Knitting Mills	Reading
Chipman Knitting Mills	Easton
Belding-Hemingway	New York City
Lehigh Silk Hosiery Mills	Philadelphia
Lincoln Hosiery Corp.	Philadelphia
Weber, Friedrich & Weil	Philadelphia
Belding-Corticelli	Montreal, Canada
Butterfly Hosiery Co.	Drummondville, Canada

Vanitas Machines are covered by U. S. Letters Patent No. 1,745,462, also pending applications covering the method and apparatus for repairing hosiery.

PHOTOGRAPH OF AN ACTUAL VANITAS INSTALLATION
SINGLE UNITS FOR SMALLER INSTALLATIONS

• • • Kayser Hosiery Motor Mend Corp., 40 East 34th Street, New York City • • •

• • • CHOOSE VANITAS FOR HOSIERY REPAIR • • •

VANITAS—

THE ELECTRIC HOSIERY REPAIR MACHINE

THE problem of every modern estab-

VANITAS IS SIMPLE IN CONSTRUCTION, NO COMPLICATED PARTS

THE ESSENTIAL FEATURES ARE:

1. The machine, light weight and portable

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VANITAS—

THE ELECTRIC HOSIERY REPAIR MACHINE

THE problem of every modern establishment which has or is considering a hosiery repair service is which repair method will give the most satisfactory quality, production, service, increase sales and profits. The answer is Vanitas, the most efficient, economical and profitable hosiery repair machine in actual use . . . with an amazing proven record of performance.

Complete demonstration at main office, branch offices or in your own store.

VANITAS IS SIMPLE IN CONSTRUCTION, NO COMPLICATED PARTS

THE ESSENTIAL FEATURES ARE:

1. The machine, light weight and portable.
2. The Vanitas flexible power operated needle, guided by the hand is constantly under operator's control.
3. The Vanitas needle not only reknits runs but also closes the hole in the run by flawless or invisible mends. The only power operated needle to accomplish the complete repair without the use of auxiliary hand needles.

1331

1332

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the Original Petition, Specification, Oath and Drawing, in the matter of the

Abandoned Application of

John Wall Pogson,

Filed December 22, 1921, Serial Number 524,226,

for

Improvement in Means for Repairing Knitted Goods.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fifth day of February, in the year of our Lord one thousand nine hundred and thirty-four and of the Independence of the United States of America the one hundred and fifty-eighth.

ATTEST:

Chief of Division.

Commissioner of Patents.

1333

524226

Application for U. S. Letters Patent.

(H. GARDINER & SON, PATENT AGENTS, 173, 174 & 175, FLEET STREET, LONDON, ENGLAND.)

DEC 22 1921

Petition.

To the Commissioner of Patents:

Your Petitioner, JOHN WALL POGSON

a Subject of the King of Great Britain

residing at Dennistoun, Glasgow, Scotland.

whose Post Office address is 262, Duke Street, Dennistoun, Glasgow, Scotland

prays that Letters Patent may be granted to him *for improvements in* the method of repairing knitted goods

set forth in the annexed specification.

And he *hereby appoints* JAMES L NORRIS, of Washington D C

whose register number is 46

his *Attorney*, *with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the Patent, and to transact all business in the Patent Office connected therewith.*

Signed at 175 Fleet street London England

this 7th *day of* December 1921

Sign here in full. — John Wall Pogson

Specification.

To All Whom it May Concern:

BE IT KNOWN, *that* JOHN WALL POGSON

a Subject of the King of Great Britain

residing at Dennistoun, Glasgow, Scotland.

has invented certain new and useful improvements in means for the ~~method of~~ repairing knitted goods.

of which the following is a specification:

6 (1)

This invention has reference to ~~methods of~~ means for repairing knitted goods, particularly goods of fine makes, such as those made from silk or a fine quality cotton thread or woollen yarn.

Goods of the above kind frequently have the thread or yarn broken in a part of the knitted article. This occurs more particularly with stockings, and is the cause of what are called "ladders". Various known methods are adopted for repairing the article, but in all cases the article, when repaired, presents an unsatisfactory appearance and is of little further use.

The object of this invention is to provide an improved ~~method of~~ means for repairing knitted articles in which "ladders" have been formed, whereby the appearance of a perfectly knitted article is produced.

According to this invention, the method, using the improved means consists in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the last loop formed at the end of the ladder with the succeeding portion, such as, by a piece of thread or yarn corresponding to the article.

The means for carrying out the method comprises a "latch" knitting needle, of the size and design as used in knitting machines, secured in a handle and provided with a removable damp proof cap.

Referring to the accompanying drawings, Figure 1 illustrates a piece of knitted fabric with a "ladder", Figure 2 a suitably mounted form of latch needle for repairing such "ladder", and Figures 3 to 8 inclusive illustrate a method of proceeding for effecting a repair of a "ladder" in a knitted fabric, under this invention.

The means illustrated in Figure 2 comprises a knitting

needle a with a hinged latch b. The needle is secured in a handle c and the latter is fitted with a removable protective cover d adapted to enclose the needle a and keep it free from damp and dirt.

One manner of using the needle for repairing a "ladder" e shown in a piece of knitted fabric in Figure 1, is illustrated in the series of views Figures 5 to 8 inclusive. In Figure 5 the needle a with the latch in the open position is in engagement with a loop f formed thereby in the bottom piece of thread or yarn g^1. The needle thus engaged is then moved to the position shown in Figure 4 to enable the forward hook end to be directed towards the adjacent piece of thread or yarn g under which the hook is passed as shown in Figure 5 and moved forwardly until the latch b passes the loop f. The direction of movement of the needle a is then reversed with the result that the latch is moved to the closed position by contact with the loop f and the piece of thread or yarn g is enclosed between the hook and the latch and passed under the loop f and formed into a loop g^1 as shown in Figure 7. In passing the loop g^1 under the loop f, the latter passes out of engagement with the needle and the latter is then free to be moved forwardly over the loop f for engagement with a piece of thread or yarn h as shown in Figure 8. Upon the hook being engaged with the piece of thread or yarn h, the loop passes beyond the end of the latch and a reversal of the direction of movement of the needle again closes the latch against the hook owing to the contact of the former with the loop g^1, and the loop thus formed in the piece of thread or yarn h is taken under the loop g^1 and the latter disengaged from the needle. By such a series of operations with each piece of thread or yarn in the ladder, each piece is looped

or knitted with the adjacent piece and the whole of the damaged or imperfect part is repaired or made perfect. When the final loop has been made a piece of thread or yarn preferably similar to that of the damaged or imperfect knitted fabric, is passed under the loop and into engagement with the margin of the damaged portion and knotted. The introduction of thepiece of thread or yarn for tying the last loop may be effected by a sewing needle or by means of the latch needle, as will be obvious.

What I do claim as my invention and desire to secure by Letters Patent is:-

1. A method of repairing knitted goods in which the thread or yarn is broken with the consequent formation of a "ladder", consisting in looping or knitting each portion of the thread or yarn forming the ladder with the succeeding portion and securing the ~~last~~ loop formed at the end of the ladder with the adjacent portion of the knitted fabric by a piece of thread or yarn, substantially as set forth.

2. Means for repairing knitted goods ~~according to claim 1~~ comprising a latch knitting needle of the size and design as used in knitting machines mounted in a handle and provided with a removable damp proof protective casing.

In testimony whereof I *have hereunto set* my *hand in presence of two subscribing witnesses:*

† In signing, the first or given name should be written in full. — John Wall Pogson

or Two witnesses sign here. — Richard Lowe Gardner
Lynwood Gardner

Oath.

United Kingdom of Gt Britain Ireland
County of London, City of London. } ss:

JOHN WALL POGSON

the above-named petitioner, being sworn deposes and says that he is a Subject of the King or Great Britain *and resident of* Dennistoun, Glasgow, Scotland

and that he *verily believe* s himself *to be the original, first and* sole *inventor of the improvements in* the method of repairing knitted goods

described and claimed in the annexed specification; that he does *not know and does not believe that the same was ever known or used before* his *invention or discovery thereof; or patented or described in any printed publication in any Country before* his *invention or discovery thereof; or more than two years prior to this application; or patented in any Country foreign to the United States on an application filed more than twelve months before this application; or in public use or on sale in the United States for more than two years prior to this application, and that no application for patent on said improvements has been filed by* him *or* his *representatives or assigns in any Country foreign to the United States, except as follows:* Great Britain No. 168817 and dated 18th January 1921.

† In signing, the first or given name should be written in full. — John Wall Pogson

Sworn to and subscribed before me, this 14th *day of* December 1921.

U.S. Consul sign here. — P. Gillett
Vice Consul

CONSULATE - GENERAL OF THE UNITED STATES OF AMERICA FOR GREAT BRITAIN & IRELAND AT LONDON.

I Richard Westacott Vice Consul of the United States of America at London, England do hereby make known and certify to all whom it may concern that Henry Ebenezer Lillard who hath signed the annexed Certificate, is a Notary Public, duly admitted and sworn and practising in the city of London, aforesaid, and that to all acts by him so done full faith and credit are and ought to be given, in Judicature and thereout.

In Testimony Whereof I have hereunto set my hand and affixed my seal of Office at London aforesaid this 8th day of December in the year of our Lord One Thousand Nine Hundred and twenty one

5 74 22 6

R Westacott C-7

VICE CONSUL FOR THE UNITED STATES OF AMERICA AT LONDON, ENGLAND

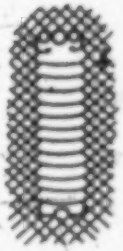

Fig.1.

Fig.2.

Fig.3.

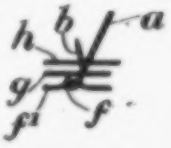

Fig.4.

Fig.5.

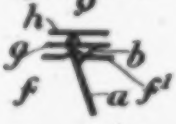

Fig.6.

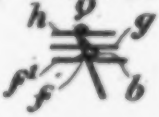

Fig.7.

Fig.8.

Inventor
John W. Pogson
by Chas. L. Burns
Attorney.

2317-1

[fol. 1341] UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

October Term, 1933

No. 458.

Argued May 23, 1934.—Decided July 31, 1934

THE STELOS COMPANY, INC., Appellant,

v.

HOSIERY MOTOR-MEND CORPORATION, KAYSER HOSIERY MOTOR-MEND CORPORATION, JULIUS KAYSER & COMPANY, a Corporation, Appellees

Appeal from the District Court of the United States for the Southern District of New York.

Before L. Hand, Augustus N. Hand, and Chase, Circuit Judges.

Appeal by the plaintiff from a decree of the District Court for the Southern District of New York dismissing a suit upon claim 23 of reissue patent, No. 16,360, issued to Frank C. Stephens, on June 8, 1926.

Vernon E. Hodges and Henry Gilligan, both of Washington, D. C., for appellant.

Hugh M. Morris, of Wilmington, Del., and Julian S. Wooster, of New York City, for appellees.

L. HAND, Circuit Judge:

The invention is for a method of repairing "runs" in a stocking or the like. The fabric is stretched over a hollow holder like a cup or glass; a hook with a pivoted latch is then put through a loop of the "run" until the loop has slipped past the end of the latch, which it has meanwhile opened in its passage. The hook is then drawn back catching the next thread of the run, and by the same movement the first loop closes the latch, which with the hook embraces the caught thread, the first loop sliding off the closed latch. The caught thread can then be moved over the first loop to make a second loop, and will open the latch as the hook descends to catch a second thread with which to make a

third loop. This process will be so repeated to the end of the run. The infringement is by a similar needle except that the latch slides to and fro longitudinally in the shank, instead of being pivoted. The specifications disclosed the hook and latch as magnetized so as to fly apart; and a "bevel side guard," whose function we reserve for the moment. The defendant did not magnetize its hook and latch, or have any side guard; but, since the claim in suit did not specifically incorporate either of these elements, this was alleged not to excuse it.

A British patent to Pogson, 168,817 (1921), which was never indeed sealed, but is a publication within the statute, disclosed a needle, with a hook and a pivoted latch, and a stitch like Stephen's, except that there was probably no holder, the fabric being held over the fingers and the stroke substantially horizontal. The exact meaning of the specifications and figures of this patent are not important, because even if it were finally determined that the needle was to be used over some holder, as a disclosure it is too uncertain to be a good anticipation. It did not invalidate the patent, any more than did the failure to disclose an egg-cup as the "suitable holder," as the judge supposed. The language of the specifications, "porcelain dish, allowing sufficient depth for the free use of the needle" (page 1, lines 12-14), was entirely adequate. Any one who really wanted to practice the invention would easily find a convenient holder: a small glass, or a little coffee cup, or the like. Such a simple device is enough disclosed when it is described by its function.

Notwithstanding the ambiguity of Pogson, Stephens was [fol. 1342] not the first to invent an open holder, which permitted the needle to be raised above the work. On June 27, 1923, Otto C. Semonsen filed an application which resulted in patent No. 1,526,265; it disclosed a holder in the form of a drum over the top of which the fabric was to be stretched. The needle, claimed in a companion application of the same date, had no latch and the loop was disengaged from it by a means not necessary to describe; but it was plainly to be used over "a suitable holder," which might have been an egg-cup, though it was not so disclosed; and thus it contained the feature lacking in Pogson, if Pogson really did lack it. Stephens filed his application on September 24, 1923, three months after Semonsen, and although Semon-

sen's patent was still in the office and did not count as prior art, Stephens was not the first inventor. Milburn Co. v. Davis-Bournonville Co., 270 U. S. 390, 46 S. Ct. 324, 70 L. Ed. 651. He did indeed try to carry back his date to the spring or late winter of 1923, but the evidence was plainly insufficient, being no more than his oral testimony corroborated by that of his partner, Losh. Neither witness had a scrap of paper, or any physical embodiment of the invention to bear him out; and without something of the sort an inventor cannot antedate his application, except in very rare circumstances, among which certainly this case does not fall. Eibel Process Co. v. Minnesota, etc., Co., 261 U. S. 45, 60, 43 S. Ct. 322, 67 L. Ed. 523; Block v. Nathan Anklet Support Co., 9 F. (2d) 311 (C. C. A. 2). Ceska in 1920 (patent No. 1,337,884) had already disclosed a holder over the top of which the fabric to be darned was to be stretched; the mere notion of using something through which one could stitch, instead of over one's finger, was not therefore new even with Semonsen.

As we have already said, claim 23, the only method claim, did not incorporate any of the new structural variants of the needle, as did all the other claims. Claims 11 and 13 were for a peculiar lateral curve of both the hook and the latch; the purpose of which is somewhat obscure and need not be unravelled. All the other claims comprised as an element, either the magnetization of hook and latch, or the side guard, or both. The forerunner and parent of claim 23 was claim 10 of the original claims. This was also for a method, made up of the following steps: Stretching the fabric over "a suitable holder"; inserting a needle through a loop of the "run," grasping an adjacent thread which a latch should force into the hook; pulling this thread through the loop, grasping the next thread, forcing it into the hook and repeating the process. The needle was described as having the side guard, and the magnetized hook and latch, each being "curved" (incorporating the feature of claims 11 and 13). Obviously, at the beginning Stephens did not assert his invention broadly. The Examiner rejected this claim for two reasons: first, because it was not a method claim at all, being for a combination of method and "a specific construction of the needle"; second, because, as method, it was anticipated by Pogson. Stephens amended by substituting claim 23 as it issued. He eliminated all

description of the needle, except to say that it was made up of a hook and pivoted latch. This apparently satisfied the Examiner's first objection; reasonably enough, because hook and pivoted latch were very old in the art and were not the "specific construction of the needle," which had vitiated the form of claim 10. Any new feature or step in the method claimed in claim 23 over claim 10, therefore became essential to an infringement, an element with which the doctrine of equivalents would not allow the patentee to dispense. Smith v. Magic City Kennel Club, 282 U. S. 784, 790, 51 S. Ct. 291, 75 L. Ed. 707. The question is, whether there was any such feature, and what it was, remembering that in the comparison we should disregard any description of the needle.

We have in general stated the steps of claim 23 at the beginning; when however we deliberately left out the following clause: "While holding the device laterally out of alignment with the run." This is the position in which the needle is to be held in its original forward movement, during which the first loop passes beyond the end of the latch. Except for it there are no differences in the two methods, save some increase in particularity; if each claim be read with the specifications, it covers exactly the same method if this element be disregarded. The plaintiff says that the clause means no more than that the needle shall be held at a substantial angle to the plane of the fabric, and so it was held by the Court of Appeals of the District of Columbia in Finch Corp. v. Stelos Co., 60 App. D. C. 25, 46 F. (2d) 606. We cannot agree. In the first place, considering the antiquity of the hook and pivoted latch, we should hesitate to [fol. 1343] say that the claim, so construed, could survive Pogson and Semonsen. To use Pogson's stitch and needle with Semonsen's holder, might conceivably require invention, but it would be a very tenuous one at best. That would be particularly true in the case of an invention which followed so hard upon its predecessors. But aside from that, the words cannot be read as the plaintiff wishes. If Stephens had meant no more than that the needle should be held at a substantial angle to the fabric, he did not say so. The two straight lines of the needle and the "run," since they meet, fix a plane. If that plane is normal to the plane of the fabric, the needle is not "laterally out of alignment with the run"; it is directly over the "run" as one looks down upon

it from above. There cannot be the least doubt that the clause meant to exclude just that; and must exclude it unless we excise the word, "laterally," altogether. Even if we should do that, the clause would be a most awkward one to express no more than that the needle should not be parallel with the fabric; fabric and "run" are quite different things. As mere matter of verbal interpretation the construction is inadmissible.

Moreover, there is at least a fair guess as to why Stephens chose this curious clause, which on its face seems meaningless. In the first place unless he was to persuade, or appeal from, the Examiner, he had to distinguish his claim frim Pogson. It is true that his method included the holder, which by hypothesis Pogson did not show, and a holder implied that the needle could, and inevitably would, be held at a substantial angle to the fabric. But claim 10 had already prescribed the holder, and the distinction had not served. Stephens apparently went to his drawings, figures five and six, and to some extent figure four, to get a differential which would support his claim; certainly he adopted what these showed. It is quite true that the specifications said nothing about holding the needle off to the side of the "run"; conceivably the claim may be bad for that reason. But they did contain language which can be rationally connected with this position of the needle, and which at least gives the claim and drawings a possible significance. The specifications describe the functions of the guard in four places, of which we may ignore the last (page 2, lines 57-69; 93-97; 117-123; page 3, lines 47-49). Stephens' idea was that on the forward stroke the first loop should pass between the shank and the guard, any other loops riding over the guard. This would do two things; it would make sure that that loop should be in position to close the latch on the return stroke, and that it should be the only one that would; and it would spread the guard away from the shank, which in turn would spread the threads, "facilitating the stroke." On the return stroke the guard would prevent the hook from engaging any other threads than the proper one. Now in order to get the loop between the shank and the guard, it would certainly appear easier to hold the needle off to the same side of the fabric that the guard is to the shank; though no doubt it could be done otherwise. At least it is a pos-

sible explanation of the drawings, and of the inescapable meaning of the claim, to which it alone gives any sense at all, so far as we can see. It is not, however, necessary that we should commit ourselves to this purpose of the disputed element in the claim, and we do not. Useful or useless, its meaning is clear and by it the applicant escaped the Examiner's ruling; he must abide his choice. Indeed at no time did he ever try to get a claim for the use of the old pivoted needle over "a suitable holder"; and on the whole he was wise not to do so, for his chances of success were remote, certainly until on an interference he could antedate Semonsen. The situation is a common one, in which having accepted a limitation to secure his claim, the patentee seeks to repudiate it in his dealings with the art.

The decree is reversed, so far as it declared claim 23 invalid; it is affirmed so far as it dismissed the bill for non-infringement.

[fol. 1344] UNITED STATES CIRCUIT COURT OF APPEALS, SECOND CIRCUIT

At a stated term of the United States Circuit Court of Appeals, in and for the Second Circuit, held at the court-rooms in the Post Office building in the City of New York, on the 7th day of August, one thousand nine hundred and thirty-four.

Present: Hon. Learned Hand, Hon. Augustus N. Hand, Hon. Harrie B. Chase, Circuit Judges.

STELOS COMPANY, Plaintiff-Appellant,

vs.

HOSIERY MOTOR MEND CORPORATION et al., Defendants-Appellees

Appeal from the District Court of the United States for the Southern District of New York

This cause came on to be heard on the transcript of record from the District Court of the United States for the Southern District of New York, and was argued by counsel.

On consideration whereof, it is now hereby ordered, adjudged, and decreed that the decree of said District Court be and it hereby is reversed so far as it declared claim 23 invalid, and affirmed so far as it dismissed the bill for non-infringement, with costs to the appellees.

It is further ordered that a Mandate issue to the said District Court in accordance with this decree.

Wm. Parkin, Clerk.

[fol. 1345] [Endorsed:] United States Circuit Court of Appeals, Second Circuit. Stelos Company vs. Hosiery Motor Mend Corporation. Order for Mandate. United States Circuit Court of Appeals, Second Circuit. Filed Aug. 7, 1934. William Parkin, Clerk.